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MOTOR BOATING

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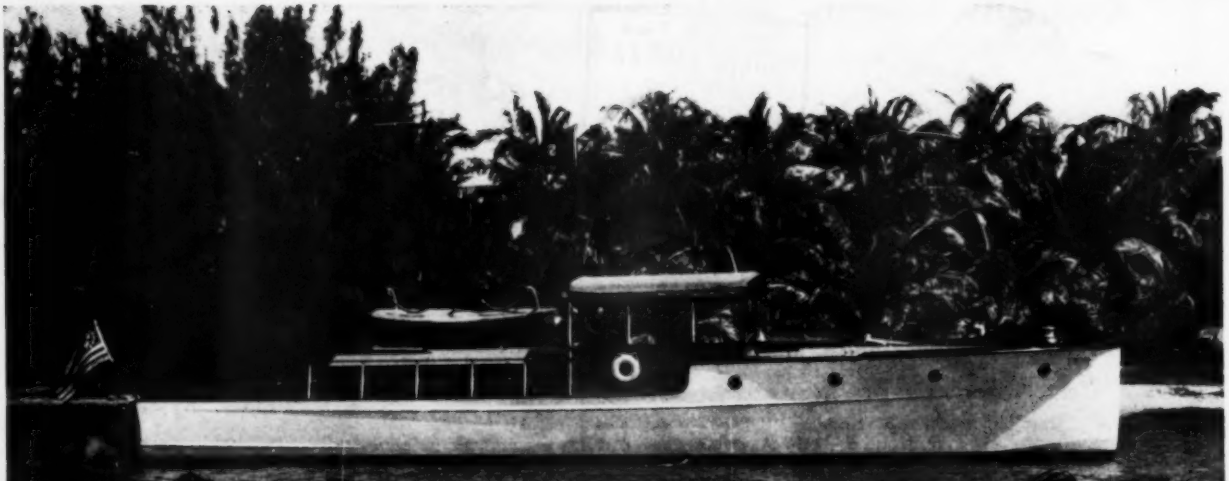

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MOTOR BOATING

Photograph by M. Rosenfeld

Progress in Nineteen Twenty-One Foretold

The Results and Enthusiasm at the Annual Motor Boat Show Indicate That the Next Motor Boating Season Will Be a Big One

By Alfred F. Loomis

AS far back as 1905, which, as I understand, was rendered historical by the second annual motor boat show, one of the greatest sayings, or proverbs, or maxims of modern times was coined—a maxim that has been dug up, dusted off, and resuscitated annually since then. I refer to those famous and glorious words, "It's the same old show." If I am informed correctly, Gerald T. White said it first to William Washburn Nutting, and the latter, wiping the salt from his venerable eyebrows, assured Mr. White that he had uttered a catalogueful. Having such an auspicious beginning, the phrase naturally leaped into general usage, and from it arises the buzz of conversation that greets one's ears as he passes through the portals of the exhibition.

The above excerpt is interesting historically, but it shouldn't be prefatory to my description of the second annual show of 1920. Commodore Chapman, who has talked more about motor boats than any ten men alive, told me to write a story not of what I heard at the show, but of what I saw. As a sea-going cove I can only follow instructions. Hence:

First of all I saw Ira Hand, secretary of the National Association of Engine and Boat Manufacturers, standing at the head of a flight of marble stairs, and distributing press tickets with a lavish hand to the gentlemen of the boating magazines. This remarkable sight proved to be an optical delusion, but as I looked further I saw that the exhibit of George Lawley & Son Corporation had actually arrived on

Photograph by M. Rosenfeld

The Valspar exhibit of Valentine & Company was one of the most interesting of the show

the opening night and was in its place at the right of the entrance. Fearing that my eyes had again deceived me, I stepped closer to attempt to brush with my hand the glossy side of a 36-foot Lawley sedan runabout. So dense was the crowd of enthralled observers around the mahogany craft that I couldn't come within stroking distance of it, but I realized intuitively that so many persons couldn't entertain the same hallucination, and decided that the improbable had become possible.

Hitherto, with the connivance of the weather bureau, the motor boat show has been timed to hit New York exactly two days later than the biggest blizzard of each winter, and it has been a physical impossibility for some of the exhibitors of the largest boats to have their displays on hand when the doors opened. Last February was the icicle that broke the polar bear's back. Rail and truck traffic was tied up and it was a courageous motor boatman who dared to plow his way through the drifts of New York to look at empty booths presided over by disappointed salesmen. Consequently, it was agreed to hold the 1921 show in the expiring month of 1920 in the hope of evading the jinx that has made it its business to bedevil the boating fans. The scheme was a good one, and the recent show touched the top notch of success from point of interest, business, and attendance. Coming as it did in advance of the annual automobile show, it caught the public panting for sight of things nautical, mechanical and electrical.

Some of us who have been attending exhibitions as a matter of business for more years than a sea turtle floating in mid-ocean and contemplatively reviewing the events of a torpid life can recall, find it a little difficult to approach with enthusiasm an affair of this kind. It used to be the doleful occupation of a few of us to collect descriptions of the newest boats, engines and accessories until we were loaded down with literature and melancholy and felt ashamed to look in the face a genuine catalogue collector. No salesman

(*Continued on page 72*)

The exhibit of the J. V. B. Engine Co. was always popular because it showed the real features of their motors

The New York Yacht, Launch and Engine Co. showed a complete line of their heavy-duty motors

Photographs by E. Levick

The Open Boat Makes a Cruise

Interesting Run Down the Coasts of Massachusetts, New Hampshire and Maine and Return

By G. A. Theabold

THE dog days just beyond midsummer had arrived and old Boston town steamed and sweated and fumed with the sweltering heat. Old Sol reigned upon the earth thereabouts with all his undisputed grandeur and seemed to come forth each day with all his might and main just to show his power over this hapless universe.

It was, in short, well into the latter half of August of 1920, and a period when a man with a card up his sleeve, or rather I should say, a motor boat up his sleeve, should play his trump and beat Old Sol by getting out where the cooling breezes had their playground.

Thus, it was not strange that in the early afternoon of Saturday, August 21, the rhythmic put, put, put of K. W. reverberated over the waters as our little 25-footer chugged her way cheerily past Deer Island Light at 3:45, just an even hour after the engine had been turned over, and three-quarters of an hour later bore off the Graves.

A girl and a buoy off the Maine coast

K. W. is of the open-boat type, with front and rear spray hood. She has a beam of six feet six and a draft of thirty-six inches. Her construction is rather heavy, with extra heavy ribs, and she is copper fastened throughout, which makes her a staunch sea boat. She is powered with a 12-to-15-h.p., 4-cycle, medium-duty motor, and is built more for service than for speed.

Notwithstanding the heat in the city the wind outside was very fresh, blowing from the east, and there was enough chill in the air to cause the skipper and the chief to dig up their sweaters, which were soon followed by the oilskin slickers when the spray began coming over every now and again. The forward spray hood was down and it was decided to let it remain down and enjoy the "caressing fingers" of Father Neptune.

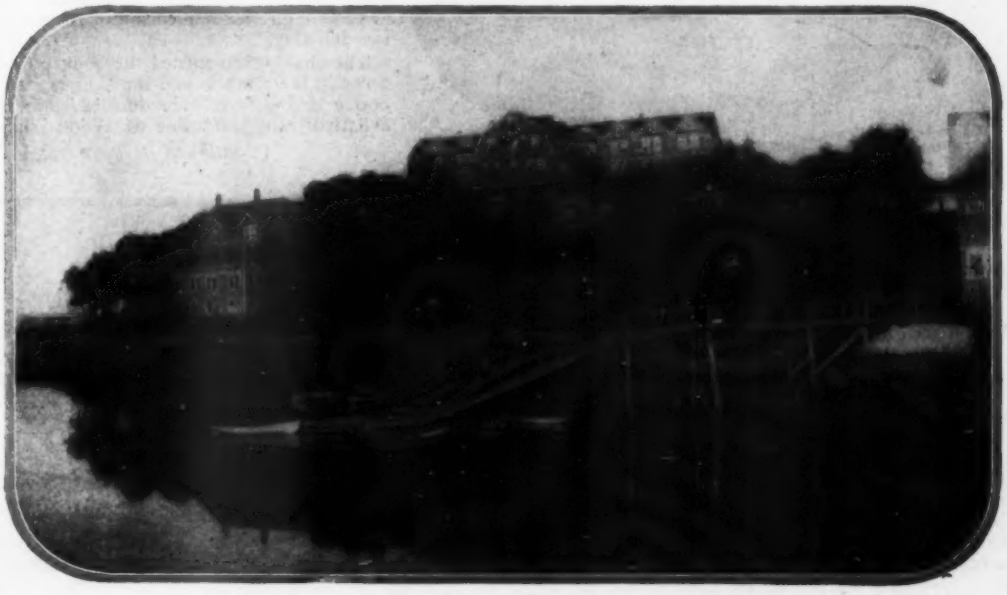
Although the start of the journey gave promise of much excitement, the trip to Gloucester was quite uneventful and K. W. dropped her anchor back of the Eastern Point Breakwater, right off the eastern station landing of the Seawanhaka Yacht Club, at 7:30.

Mess is always an important event on cruises, hence it should occasion no surprise that the skipper was now impressed as chef and the chief as steward to prepare supper. Thus it was, that while the chef prepared Boston baked and coffee the steward sliced tomatoes and cucumbers and "chopped" the bread and finally performed an operation on a can of peaches. No shore leave was granted that night and after supper dishes had been washed the chef and steward reverted to their former positions of captain and chief for a period of lounging until ten o'clock, when the chief was again transformed into a steward so that he might prepare the bunks.

This was accomplished by placing some slats longitudinally to the seats and putting the mattresses on top of the seats and slats. These berths were very comfortable—for about two hours, but as the mattresses were rather lean the slats began to work their way through and this caused us to turn automatically but regularly every so often in an attempt to find a more comfortable position. It was a still hunt, for we were still hunting for such a position when all hands turned out in the morning, at eight o'clock.

The skipper had made an investigation earlier and, finding it raining a little and a fog coming in, decided that the chief and he would sleep in for that one morning.

Prepared stewed prunes from a bottle, bacon, hen-fruit and coffee having been partaken, a conference was held and, as the weather was still nasty, it was decided that K. W. would not resume her journey until it cleared up somewhat. This having occurred about four o'clock in the afternoon, anchor was weighed when we ran up through the canal and



Christmas Cove, Maine, a popular rendezvous for motor boatmen

The good ship K. W. in which the cruise was made

an hour later anchored back of the Anisquam Yacht Club.

Supper being disposed of in a hurry, the skipper and chief went ashore about seven o'clock for a brief once-over of the Anisquam Yacht Club and to replenish the ship's stores.

Monday morning K. W. got away about 10:30 and as the wind was blowing fresh from the northwest, it was decided to keep the bow spray hood up at least until we got outside to see what the weather was like. K. W. had not gone five hundred yards after turning in front of the Anisquam Yacht Club before we found out—and the bow-hood remained up. Old Ipswich Bay was quite restless and white caps were all about.

Captain Jim and Chief Engineer George

The range of tide, between high and low water, is greatest of anywhere on the Atlantic coast

There were several other boats at anchor near the yacht club which were going east, but they decided to wait until more favorable weather. This did not deter the crew of K. W., who decided to at least go out and give the bay the glad eye. All went well for a while until Old Ipswich squirmed a trifle more than usual and a big fellow came over the bow and, making its way through the front hole in the hood, deposited a few gallons of brine over the person of the skipper, much to the chief's unrestrained glee, although it douched everything inside the boat.

The chief's merry "ha-ha" didn't act as a sedative to the skipper's ruffled feelings—and plumage, and he announced that the chief would "get his" later on.

As K. W. ploughed further across the bay it became less rough and the chief decided it would be a good opportunity to knock off a nap and, collecting a bunch of the best sofa cushions, he composed himself in comfort aft and was dreaming of floating blissfully down over Niagara Falls on a feather bed wafted gently on the surface of the waters when the Falls seemed suddenly to have reversed themselves and leaped upward to meet the down-floating voyageur, and the chief startled forth from the realm of dreams into the land of reality, found himself reaching for a life-preserver, for the skipper had given the wheel just the right twist to send over the side the twin brother of the big fellow that had come a visiting over the bow earlier in the day.

The old engine, however, was running fine and Newburyport Whistle No. 1 was picked up at 12:50 and the course changed for Gunboat Shoal Bell, which was passed at 3:20. K. W. was abeam Red Buoy No. 2 and Phillip's Rock at 3:45 and the spindle on Stone's Rock at 4:30, swinging into York Harbor and dropping anchor back of the Marshall House at five o'clock.

After supper another foraging trip was made ashore and the gas supply was also replenished so that we could get away early the next morning. We turned out at 6:30 and after breakfast the chief spent about an hour cleaning the spark plugs and repairing the tiller rope, which had become broken, and K. W. finally "steamed" out at 10:40 and headed past Cape Neddick Lighthouse at 11:15 and made a course for Cape Elizabeth, just clearing Cape Porpoise.

It was a wonderful day, with bright sunlight playing on the surface of the green wavelets, bringing into high relief all the little facets of the jewels in Father Neptune's crown. Soon, however, a slight haze appeared and K. W. began to make course by compass.

Several hours of this and the skipper opined that the craft was too far offshore and called attention to the fact that something wasn't working just right with the compass. Whereupon, after investigation, it was found that the gimbals were wrong side up, throwing the compass out of balance. This had occurred, unknown to the skipper, in the rough weather encountered coming out of Ipswich Bay.

The shaking up turned the compass over many times in the gimbals and the skipper had failed to notice this before. He decided to head in and eventually the shore-line of Wood Island, at the

(*Continued on page 92*)

The excellent anchorage at Capitol Island

Tarpon, running at 40 miles an hour in her trials on the Hudson

Demonstrating a New Principle in Runabout Propulsion

An Advance in the Underbody Design of a Displacement Craft Which Promises Great Development

By Charles F. Chapman

THERE is something new in the boating field. This time it is in the design of a fast runabout. Elliott Gardner of the Albany Boat Corporation conceived the idea and L. L. Tripp, president of the same company, decided less than a month previous to the New York Motor Boat Show that theoretically it looked good—so good, in fact, that he determined to give it a try. Therefore he called his forces together, explained to them the purpose of the new model and received the assurances that they would leave nothing undone to get a completed boat to New York in time for the Motor Boat Show, nor would they tire until the boat was on a flat car on her way south. So the keel was laid only 24 days before the Show opened its doors and with the enthusiasm of Mr. Tripp encouraging the men they worked on an average of 20 hours a day for three weeks, when the completed craft was ready for the water, spick and span and a finished boat in every particular.

Photograph by M. Rosenfeld

A view of the stern of the runabout

The Sterling Engine Co. co-operated by shipping to Albany without delay one of their 6-cylinder type GR Sterling motors, a type of motor most excellently suited for this kind of service and a motor similar to the one used in Rainbow and Snap Shot, the runabouts which made such an enviable record in the Fisher Trophy race at Detroit last summer.

Mr. Tripp was unwilling to take an entirely new and somewhat radical departure from the orthodox design of runabouts to the New York show without first giving her a thorough test in the water. Therefore he made arrangements with the timer and secretary of the Racing Commission of the American Power Boat Association to go to Albany to put the boat through a number of official mile trials in order to prove to the public at the Show that he was not showing an untried or doubtful product.

The boat was launched in a snow-storm, the trials held with water freezing on the decks and an average speed made over a carefully surveyed mile better than any runabout powered with a marine motor has yet made in an official trial or in competition.

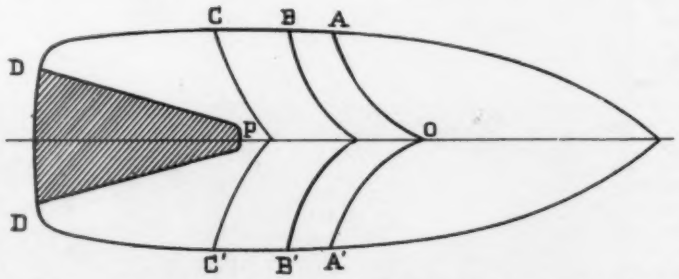


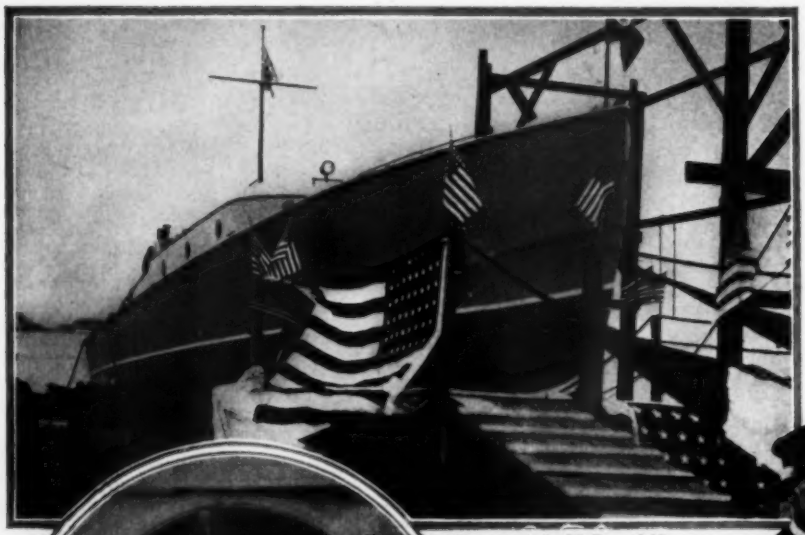
Diagram illustrating the principle which was worked out in the design

Briefly, and without any attempt to go into any lengthy technical description of the many theoretical considerations which led to the belief that the new idea would work out better than the ordinary runabout, the following will serve to give one an idea of the features of the underwater design. It is a well-known fact that when any type of boat travels faster than 15 to 20 miles an hour, there is a certain amount of planning or lifting of the entire hull; just how much depends to some extent upon the length of the boat, its weight and speed, but principally upon the type of underbody. This is the reason why better speed in a fast boat can be obtained with the V-bottom boat than with the round bilge type. There is no

(*Continued on page* 98)

Sea Hornet, a New One-Man Torpedo Boat

The Latest Development in Defensive Methods of Warfare Reaches a High Degree of Perfection in This Boat



Photographs by M. Rosenfeld

Before the launching of Sea Hornet, note the closed torpedo discharge opening forward

The torpedo loading door in the forward bulkhead

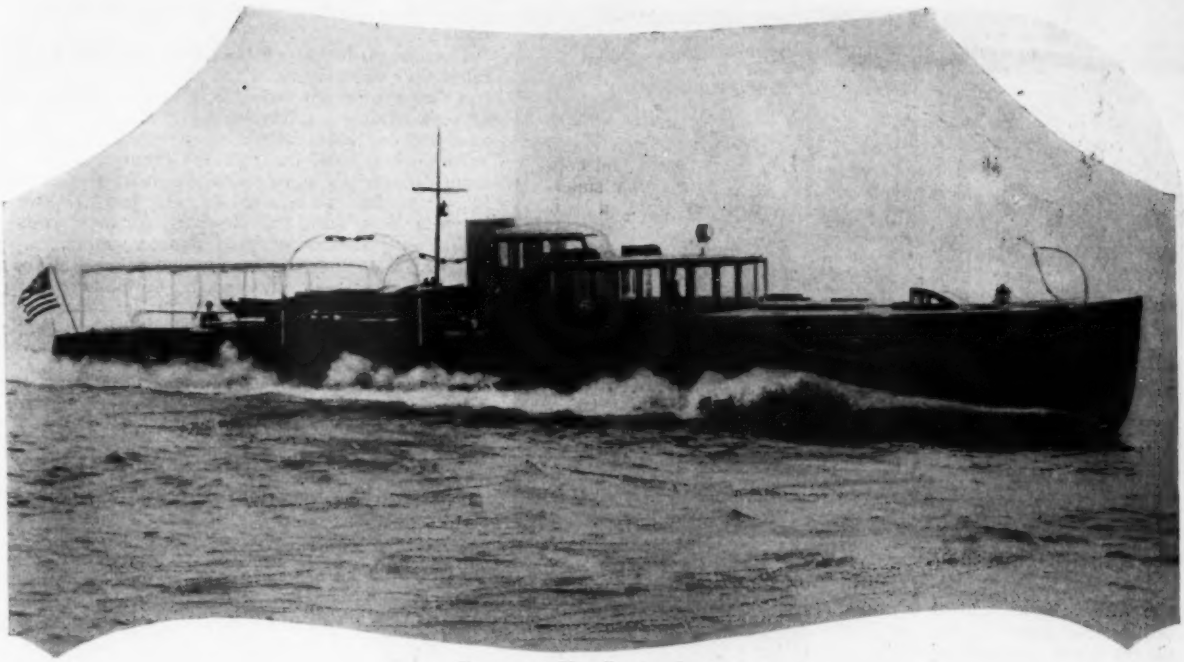
F. K. Lord and W. B. Shearer, the designer and inventor at the launching

THE launching last week of a new type of one-man torpedo boat was the culmination of many months of hard work on the part of the designer and inventor. This boat called Sea Hornet is a development of methods of warfare perfected during the late conflict. The design by F. K. Lord embodies many unique features and has been endorsed by officers of both the United States and British Navies. W. B. Shearer, the inventor, was highly pleased at the successful performance on the preliminary trials.

The operation of this boat is this: The forward compartment which is water-tight, houses the regulation type twenty-one-inch torpedo of which three can be carried. This compartment can be flooded, with the result that the visibility of the craft is reduced to a negligible point. In actual tests at night one of these boats has been able to approach a battleship which was expecting it to within one thousand yards before the powerful search-lights were able to detect it. The method of attack is to approach an enemy ship in the submerged condition and after discharging the torpedo the powerful pumps attached to the main motors are started and can in the space of thirty-odd seconds clear this compartment of water. The craft then in its light condition is capable of high speed and under the efforts of a pair of 300 h.p. Murray and Tregurtha gasoline motors can get away at about 33 m.p.h. The speed in the partially submerged condition is about 20 m.p.h. This particular boat is 58 feet long with a beam of 9½ feet and a draft of 3½ feet.

Photographs by M. Rosenfeld

Sea Hornet with both motors at work can do 33 m.p.h. and by reason of the twin screws and rudder maneuvers easily



Frances at 31 miles per hour

Our Largest, Finest and Fastest Express Cruiser

A 104-Footer with Four Motors Totalling Over 1600 Horse Power Which Shows a Speed of Better Than 31 Miles an Hour

AN advance has been made in express cruiser construction which will always be regarded as a pioneer development in the pleasure boat industry, and it is reflected in the completion of the 104-foot express cruiser for the Estate of John F. Dodge, of Detroit, by the Great Lakes Boat Building Corporation, of Milwaukee.

The construction of this cruiser has been followed most closely by those familiar with the design, which contemplates a boat 104 feet in length with a beam of 15 feet, powered with four 400-horsepower Murray & Tregurtha engines operating on triple screws for a very fast turn of speed.

When the Great Lakes Boat Building Corporation was asked by the late John F. Dodge to accept the engagement to develop and construct this cruiser there were no precedents whatever to serve as a guide for a craft that would be so heavily built and carry so large an amount of power for a turn of speed of 30 miles an hour or more, as was desired. Much preliminary work was necessary, involving the testing of a series of models at the Naval Tank varying in displacement and in the character of the running lines. The conclusion reached as a result of the test pointed to the construction of a boat 104 feet long, with a displacement of 90,000 pounds and with wave collecting underbody sections.

The enclosed bridge

Although speed was a most important factor, it was necessary for the builders not to sacrifice anything in the way of strength in order to reduce weight. The hull is of batten seam construction with a steel hogging girder running from stem to transom, over which was laid double planking, the inner skin of cedar, placed diagonally, and the outer skin of mahogany running fore and aft; the hull being built in such a way that all stresses could be equalized in every direction, so that the boat would stand up under very high speeds in heavy seas.

In order to obtain the speed desired it was necessary to utilize 1,600 brake horsepower, which could only be done by installing four 400-horsepower Murray & Tregurtha engines operating on triple screws, each running independently, and the two center engines connected in tandem through a gear that would permit the driving shaft to be placed below the bed of

A view of the after cabin

the after engine and thus avoid putting the power of both engines on the crank shaft of the after engine. In order to simplify operations, all controls for the power plants were carried to a central board for operation by one man; the clutches being handled by air and the spark and throttles by direct throw on jackshafts.

In appearance the Dodge cruiser, which is named Frances, is the most striking boat that has ever been turned out in her size and type, the finish being natural mahogany, and the fittings and equipment the very best the market affords. The interiors are also done in mahogany throughout, and the floors covered with Wilton rugs, and the upholstering done in imported broadcloth.

The cockpit is spacious and luxurious

The arrangement plan contemplates crew's quarters, captain's stateroom, and galley forward, followed by an enclosed dining and lounging saloon, enclosed bridge deck, engine compartment, two double staterooms, each with complete toilet facilities, shower bath, and a large lounging cabin and double stateroom combined, followed by a very roomy and comfortable cockpit.

The cruiser has every modern convenience and comfort that can be incorporated in a boat, including independent electric light plant operating fans and ventilating system, hot-air heating system, running hot and cold water, intercommunicating telephones, annunciator system, and refrigerating plant.

The outstanding feature of this remarkable boat is that, although it has a displacement of 90,000 pounds, a speed was obtained on the official trial trips, at which three representatives of the Dodge Estate were present, of 31.3 miles an hour, a speed in exact accordance with the calculations of the engineers of the Great Lakes Boat Building Corporation based on the results of their tests at the Naval Tank. At this speed there is entire absence of vibration and noise. This is due in a large measure to the fact that under-water exhaust is used, which makes the operation of the boat as silent as if steam plants were used. This speed can be sustained in very heavy weather, as was demonstrated on the trial trips, with the boat performing in a heavy blow off the Port of Milwaukee.

Frances is a type of boat that will be duplicated very extensively in the future, for the reason that the design embodies the vital requisites of seaworthiness, safety in any kind of weather, and the desirable factors of a speed of 31-32 miles an hour, and comfort and luxury in maximum degree. A super-motor-yacht of this kind is a craft that can be used for fast ferry service between New York and Newport, for week-ends or for extended cruising in remote waters.

The Great Lakes Boat Building Corporation, which has done so much in the development of the express cruiser industry, is to be congratulated on the initiative it has shown in designing and constructing the Frances.

How the Design Was Developed

By Walter F. Beauvais

Designer, Great Lakes Boat Building Corporation

IN September, 1919, the late John F. Dodge, of Detroit, advised that he wanted us to undertake the construction of the largest express cruiser that could be built that would be seaworthy and develop a speed of 30 miles an hour, powered with gasoline engines. He was prepared to go to any expense to develop this boat, which he wanted to pioneer.

There were no precedents whatsoever to serve as a guide for this type of boat. A review of the boats that had been built during the course of several years indicated that 24-27 miles an hour was the best speed that had been obtained, and this in relatively small boats, so that consequently there was no data available for the type of boat Mr. Dodge wanted.

An analysis of the preliminary conditions seemed to point to the development of a boat of about 104 feet in length, and, in this connection, Mr. Dodge wanted as much beam as possible, and not less than

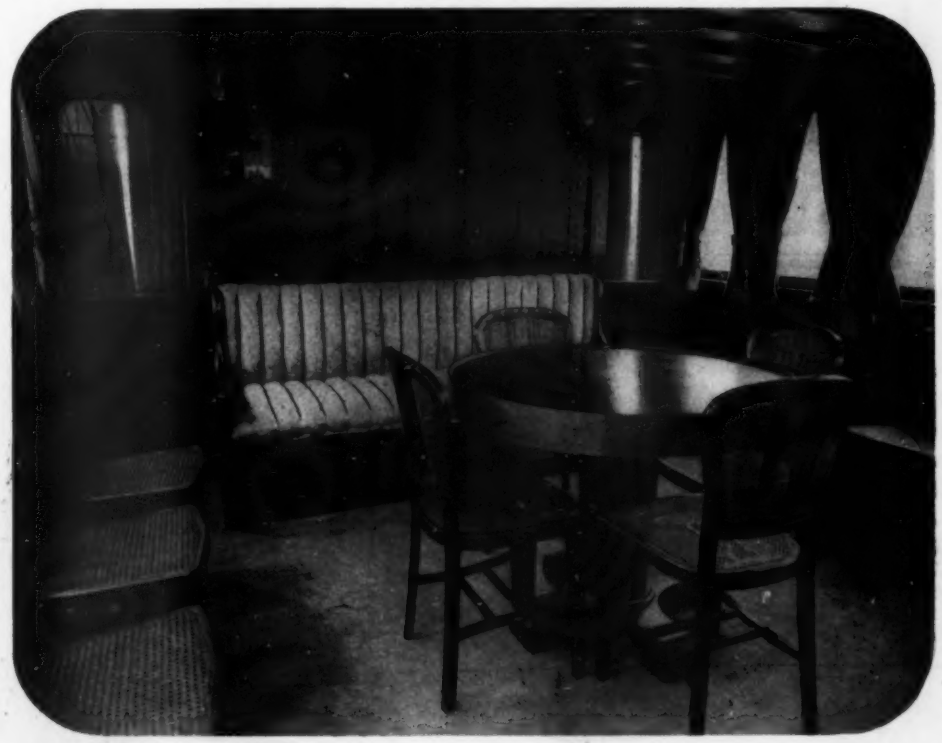
One corner of the galley

A view of the deck house

15 feet, if it could possibly be obtained. The first problem was to work out a series of lines and make up models for the test at the Naval Tank in order to determine what size and type would be required to obtain a speed of 30 miles an hour. This was done, three models being tested; the first with straight *V* sections; the second with modified *V* sections; and the third of the wave-collecting type. The models were arranged to trim for a displacement of from 35 to 54 tons, in order to give sufficient leeway to work out the size and weight of the power plants and various stress members and other elements of construction going into the boat.

Several days were spent at the University of Michigan with Professor Sadler in conducting the series of tests of the three models, with speed variations of 10 to 36 knots an hour, with displacements within the limits mentioned above. It was found upon plotting the results that the

(*Continued on page* 82)



The dining saloon on the largest yacht is not more spacious

New Models & Motors

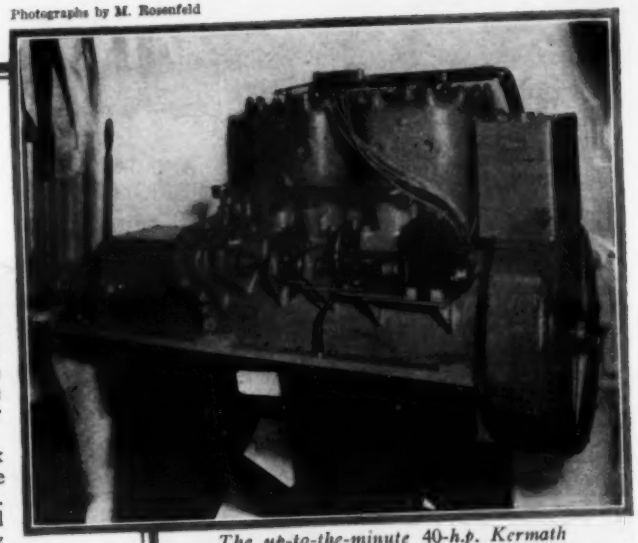
Progress is Being Made Continually by Many Busy Manufacturers of Marine Motors

THE Motor Boat Show for 1921 disclosed to the gaze of the enthusiast many new and novel marine motors which embodied all the ingenuity and brains of the most progressive motor designers in the country. Amid the array of motors shown were many models which have been on the market for years. Improvements were visible here as well as in the brand new motors which made their début at the show.

It is, however, not the purpose of this article to speak of the old-established motors. Rather, we wish to see just what the new manufacturer finds in the marine field. What he has done to make his product stand out above all the rest and what he has done which the other fellow has overlooked. With the present-day progress in the automotive industry it behooves every motor manufacturer to be on the alert to take instant advantage of all knowledge which will tend to improve his product. For example, there is the Knox 20 h.p. motor which embodies some of the most novel features yet incorporated into a marine engine. Among these can be mentioned the complete self-contained oiling system. This operates under pressure furnished by a gear type pump which is driven off the camshaft. All lubricating oil is strained and is applied to the bearings from the inside. The shafts ride on a film of oil and the possibility of burning out a bearing due to lack of lubrication no longer exists. The reverse gear and thrust bearings are included in the oil system, so that there are no grease cups to be looked after. A stuffing box on the after end of the motor serves two purposes. It prevents oil from leaking out into the bilge and further keeps the bilge water from getting into the reverse gear housing.

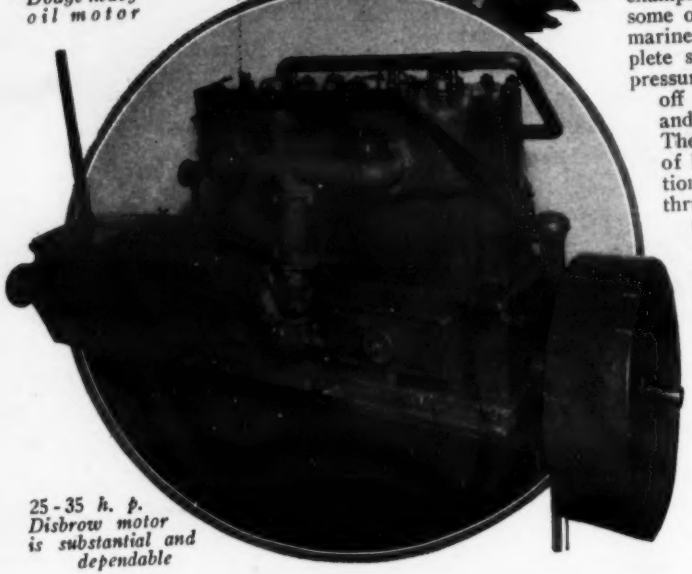
The valves are made of high-class metal which experience has shown to be well suited for this purpose. Each valve stem is fitted with a special cap within which are contained a number of shims to provide adjustment. This method has been thoroughly tested and has been found superior to the threaded method generally used. Another motor is found which places the flywheel between the cylinders and

Photographs by M. Rosenfeld



The up-to-the-minute 40-h.p. Kermath

The two-cylinder Dodge heavy oil motor

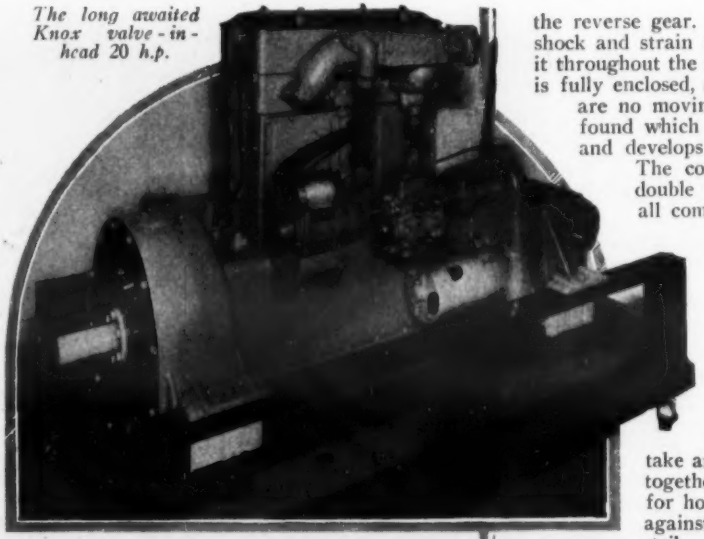


25-35 h. p. Disbrow motor is substantial and dependable

A special light-weight Peerless motor of 125 h.p.

is substantial and dependable

of 125 h.p.



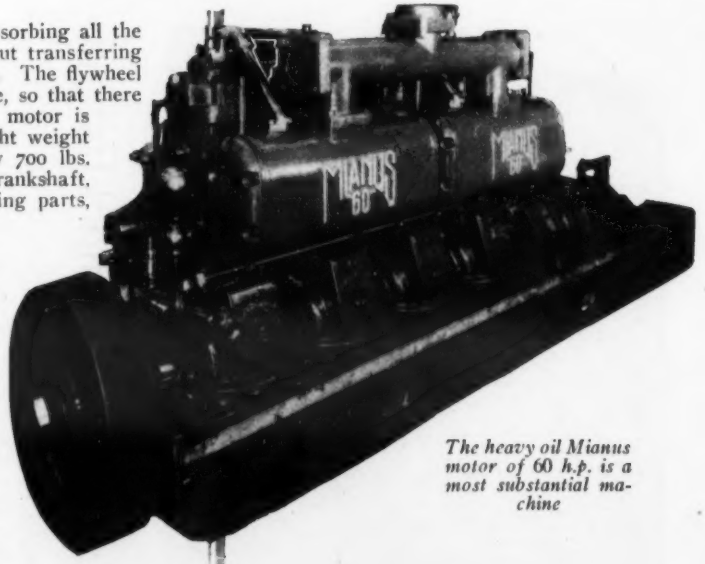
The long awaited Knox valve-in-head 20 h.p.

the reverse gear. This has the advantage of absorbing all the shock and strain from the propeller shaft without transferring it throughout the entire length of the crankshaft. The flywheel is fully enclosed, as is becoming general practice, so that there are no moving parts in evidence. A third motor is found which makes a special feature of light weight and develops 75 h.p. for a weight of only 700 lbs. The compactness, the five bearing crankshaft, double valves, light-weight reciprocating parts, all combine to make this possible.

The Sterling Motor Company has also brought out a new design which is a modification of their well-known overhead dual-valve motors. These are fitted with three valves instead of four, which makes possible the arrangement of both inlet and exhaust passages on the same side of the cylinder. The intake and exhaust manifolds are both together, and there is a provision for hot spots in the intake manifold against which all incoming gas must strike. The compression is not as high as in the four-valve machines and the motor is more suitable for the heavier type of boat. Sterling engineers in designing this motor have taken into consideration the poor grade of fuel supplied today and these motors will operate on a fuel consumption of .65 lbs. per b.h.p hour.

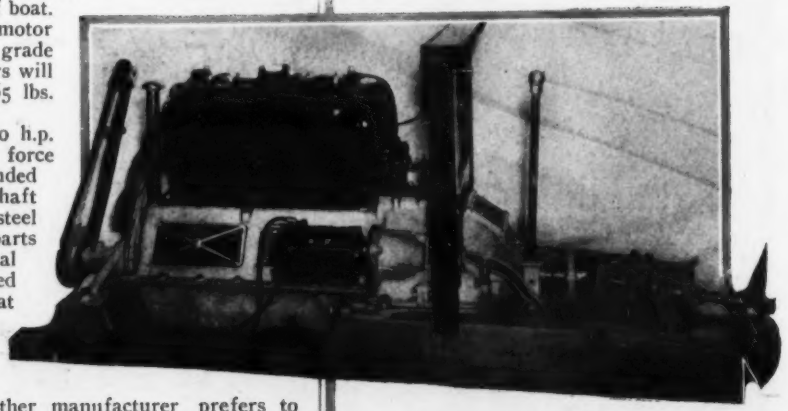
Then there is the new Kermath 40 h.p. motor. This is also provided with a force feed lubricating system which is extended to all bearings and through the main shaft to the reverse gear. Chrome nickel steel is used for the crankshaft and other parts of the motor are also built of special alloy steels, each particularly suited to the individual needs of that part. In line with modern progress grease cups are eliminated on this motor also. Another manufacturer prefers to use over-size valves rather than the complexity of double valves. It is realized that larger gas passages are necessary if the power is to be obtained from the motor so that the size of valve ports is increased by using larger size valves. The reverse gears are also being mounted integrally with the motor. No manufacturer today thinks of supplying a large motor without the attached gear.

(*Continued on page* 104)

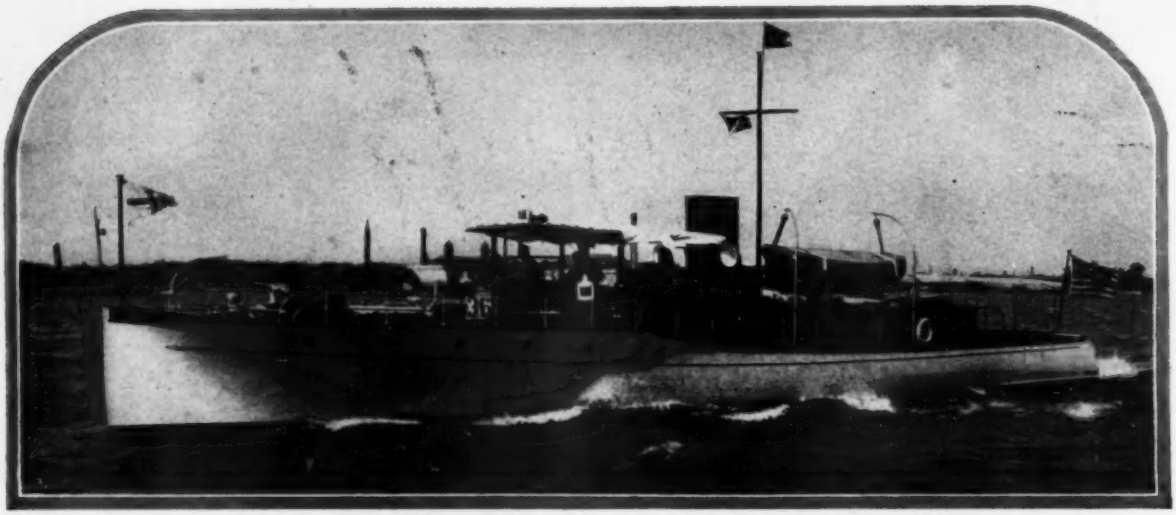


The heavy oil Mianus motor of 60 h.p. is a most substantial machine

The Gierholtt outboard motor does away with bevel gears

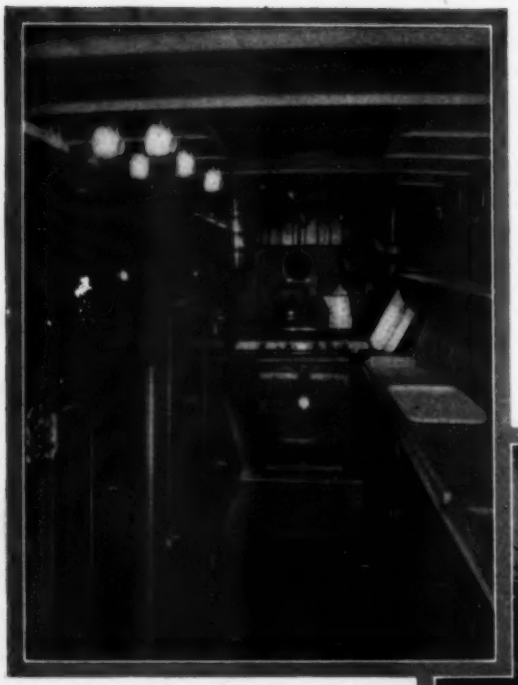


The Capitol motor is completely equipped with all accessories



A Remarkable Boat with a Remarkable History

Lidwina III, Owned by Commodore S. B. Eagan, of Buffalo, Winner of the Great Lakes Cruiser Championship of 1920, Has All the Qualities of a Real Cruiser



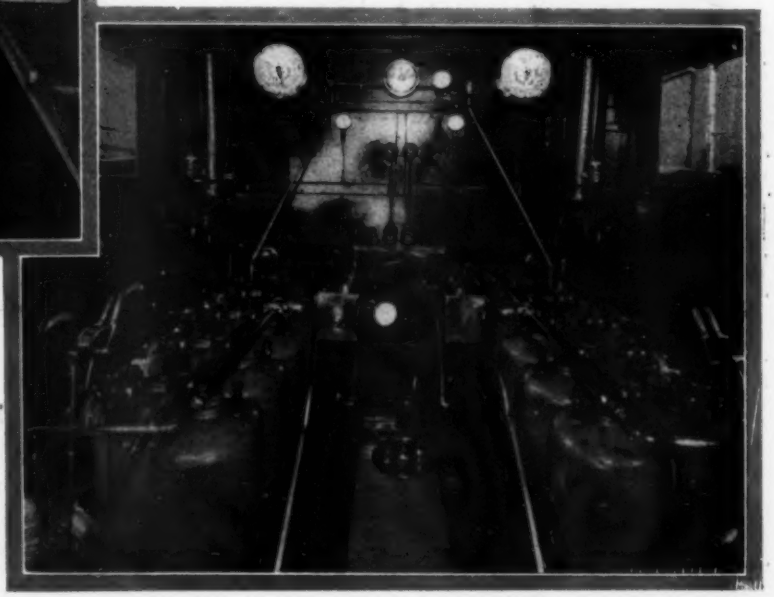
The galley is forward. It is practically arranged from every standpoint

LIDWINA III, built by the Gas Engine & Power Company, and Charles L. Seabury & Co., Consolidated, now the Consolidated Shipbuilding Corporation of Morris Heights, N. Y., and launched in the year 1911, has proven to be one of the finest and most successful express cruiser type of craft that has ever been produced.

Constructed nine years ago, she is today the embodiment of the latest type of express cruiser construction, which speaks volumes for the advanced design, and execution of this celebrated firm, for to them is justly due the credit of first developing this most popular type of boat today.

Built especially for A. Y. Gowan, of Cleveland, and named by him Speejacks, and purchased three years later by S. B. Eagan, of Buffalo, and re-named Lidwina III, she is 77 ft. long, 10 ft. beam, with 5 ft. 6 in. freeboard, of the raised deck, trunk cabin type.

The hull is built of cedar, with white pine decks and mahogany trunk cabin interior finish and trim.



Two 6-cylinder Speedways between steel bulkheads furnish the power

The main saloon

The crew's quarters forward are luxurious also

The general layout consists of galley forward, equipped with electric range, large refrigerator of 600 lbs. ice capacity, 200-gal. water tank under floor, toilet, dining saloon, seating six persons, with buffet, bridge deck, with two 400-gal. capacity copper gasoline tanks placed under in copper pans, which drain outboard, and fitted with deck emergency shut-off valves, the whole placed between steel bulkheads, affording the greatest safety possible.

Engine room amidship between steel bulkheads, having all the advantage of full head room, light and ventilation of the trunk cabin. Engines are two 6-cylinder, 6½ x 8 Speedway motors, and a 6-cylinder Winton 110-volt 5 K. W. Generator furnishing ample current for lighting, heating and cooking, an electric-driven bilge and fire pump with an elaborate switchboard completes the main equipment.

Under the athwartship seat on the bridge deck is a 60-gal. copper oil tank with piping to the engine room.

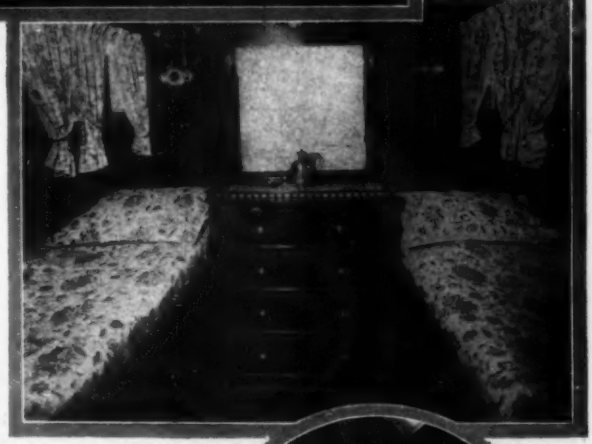
Immediately aft of the engine room are three more gasoline tanks of 300-gal. gasoline capacity each, constructed similar to the forward tanks, and likewise placed between steel bulkheads.

Following aft are the owner's and guests' cabins, with toilet room and clothes lockers between. In the rear is a large self-baling cockpit with a 300-gal. water tank underneath; next comes the aft collision water-tight bulkhead and the lazarette.

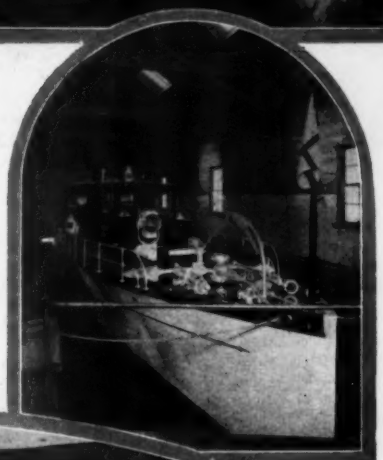
The deck equipment consists, among other essentials, of a 12-in. Carlisle-Finch searchlight, Cory engine room signal apparatus, emergency bilge and fire pump, life raft and 12-ft. power tender.

One of the many remarkable features of the boat is her large gasoline capacity of 1,700 gal., and oil of 50 gal., giving her a cruising radius of 1,500 miles at a speed of 15 miles per hour.

(*Continued on page* 108)

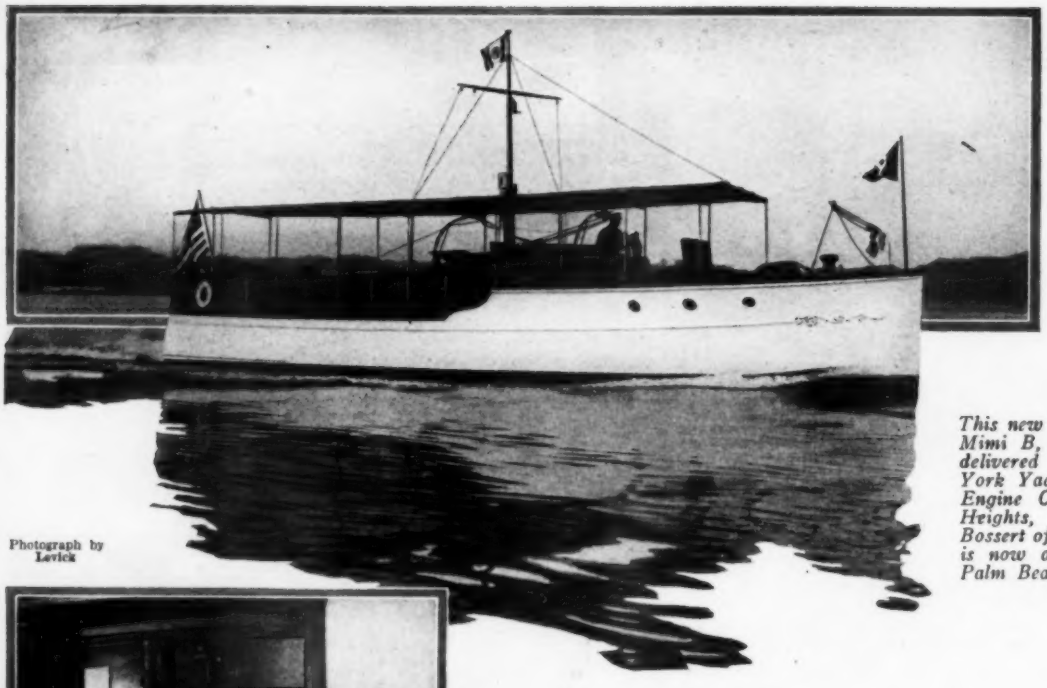


The owner's stateroom



Lidwina III in her boat house on the Niagara River at Buffalo

Some of Commodore Eagan's boat houses. These have made possible real boating at Buffalo

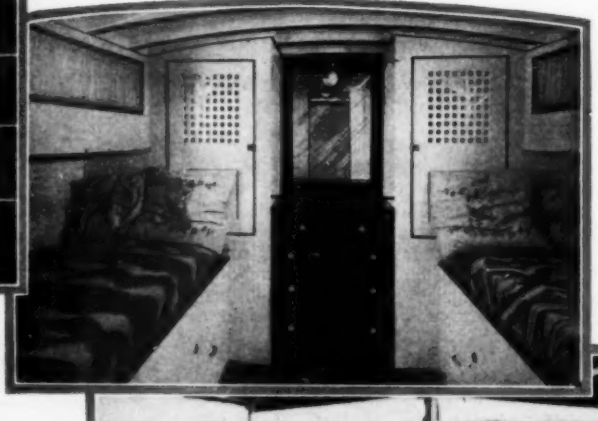


Photograph by Levick

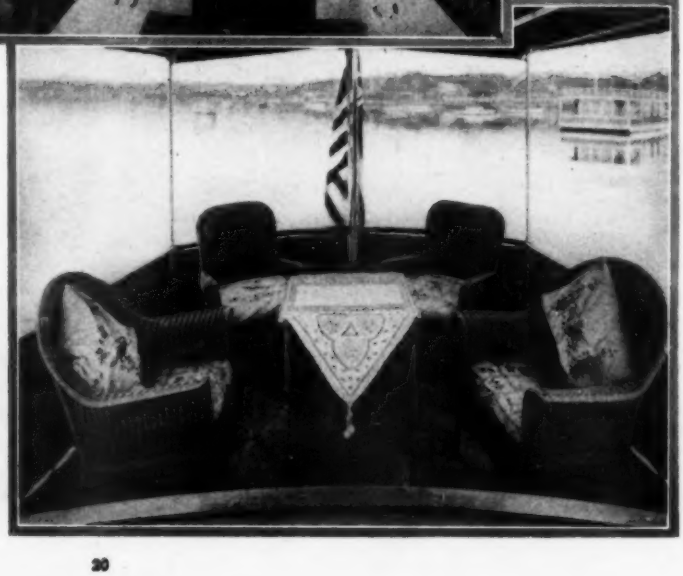
This new cruising yacht, Mimi B, has just been delivered by the New York Yacht, Launch & Engine Co., of Morris Heights, to Mr. John Bossert of Brooklyn, and is now on the way to Palm Beach and Miami, Fla.

Mimi B Off for Florida

The length overall is 53' 6", beam 12' 6", draft 3' 3". Mimi B is powered with a 4-cylinder, 4-cycle Twentieth Century marine motor developing 40 to 50 h.p. and driving the boat 11½ miles cruising speed



The interior finish is egg-shell cream enamel with mahogany trim



A view of the after cockpit which with the bridge-deck forward gives the 53-footer a generous amount of deck space

Mariposa, A 30-Footer

An Example of the Possibilities in a Small Cruiser

FROM a 22 ft. catboat, through a 72 ft. sloop, to a 30 ft. R. D. Cruiser, is a long way, but for comfort, convenience and reliability, the last sums up well, and the cramped quarters and simple handling of the catboat, the navigating of the yacht with the idiosyncrasies of Sailing Master and crew to consider, make it a relief to become comfortable, boss of one's own craft and the weather. The small sailboat teaches that there is no unavailable space or waste room, and that ground tackle is a necessity, and must always be ready when afloat; also that, properly handled, a boat will live anywhere. The larger boat suggests how to be more than a passenger as well as how to play the game right, even to the ingenuity of deep sea cooking, where as many as four different foods may be cooked simultaneously in the same pot, and preserve their identity.

Mariposa is a 30-ft. overall R. D. Cruiser, powered with 15-18 H.P. Palmer medium duty engine, Kingston carburetter, one set of spark plugs on Bosch magneto, and one set of plugs fed from dry batteries through "N.Y." Coil, switches arranged to interchange both systems of ignition with dry or storage batteries. Edison storage batteries are charged from Aplco automatic cutout generator, friction driven.

If one desires to carry a crew, it would be pleasanter to have 6 ft. more in length, so that the crew may be "stowed" at times when not busy and no place to be sent for amusement. Mariposa has carried a crew of one "able seaman", but there are plenty of youngsters of the very highest type, who are available between school terms, to keep her bright, have her ready, and put things away, at all times.

In fitting out, no matter how small the boat, each item is of equal importance, and should be of the very best, whether a ship's clock, or piece of bunting. It pays.

In the bow, is a 30-gal. fresh water tank, giving gravity supply to basin and sink. The "Bath Room", 4 ft. x 4 ft., is fitted with folding basin, over which is towel and sheet and pillow case locker, with mirror in door. On both sides are canvas wall pockets for bath towels, negligee shirts, underclothes, and shoes, one having pockets for hair brushes, razor, and toilet articles.

Mariposa under way

The large charts are stowed in slings on port side under, and short charts between carlins. Rods 2 ft. long, running out from after bulkhead, and parallel to sides, provide for clothes hangers. Slickers and working clothes are stowed in corners, as are unbrellas, brooms, etc., and a roll of carpet, when cruising. Illumination and ventilation are from four ports; one 16 C.P. and one 2 C.P. electric lights are provided. The 7 ft. x 10 ft. cabin is furnished with cushions made of upholstered pillar springs, having removable linen covers. This makes soft, comfortable couches, and the linen slips always look neat and are easily laundered.

Extra bed linen, blankets, and pillows, with a Gold Medal folding cot, are stowed on transom, forward on port side, over which are two canvas shelves, for ladies' hats, shore hats, linen dresses, etc. Against bulkhead, is nest of pigeon holes, for international code flags, and extra suits of flags, complete, from Union Jack to Crew's Meal Flag. Tan colored velour curtains are hung around this stowage. These curtains may be swung across cabin, forming a dressing room with full length mirror in "Bath Room" door. This curtain locker is lighted with one 16 C.P. electric light.

On the opposite side, are stowed pillows and wraps for deck use. The ship's clock is fastened to bulkhead. Book racks, on side and bulkhead, provide places for Club books, papers, and magazines. A completely equipped medicine chest is made fast to side.

(*Continued on page* 94)

A view of the general arrangement of Mariposa's cabin

Lucetta—A New Countess

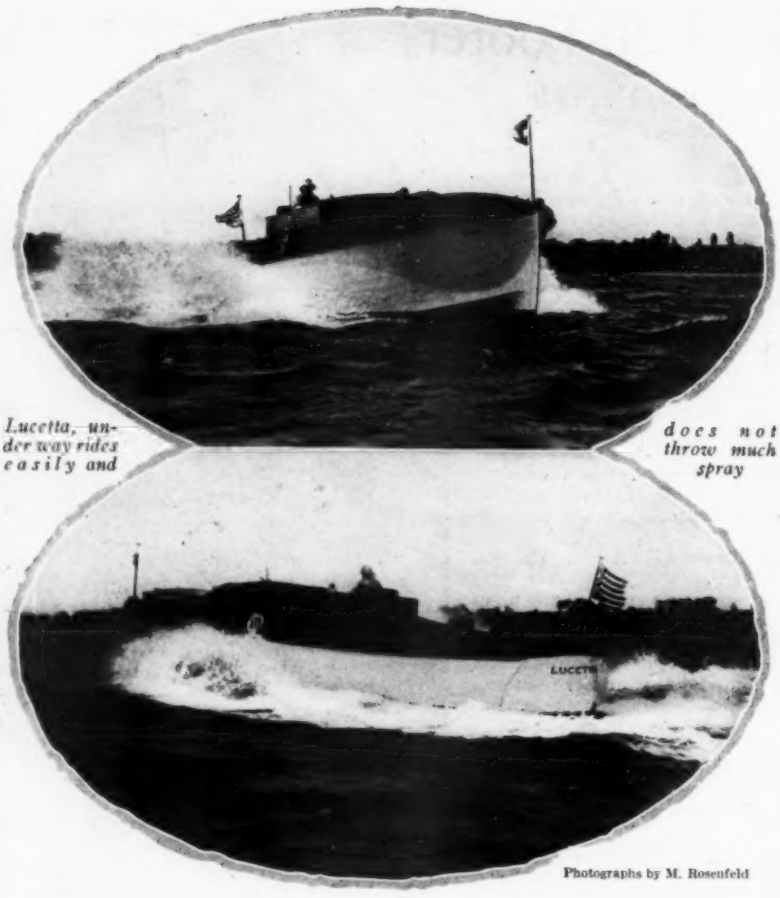
Designed by Wm. H. Hand, Jr., Lucetta Has Developed Into One of the Fastest Express Cruisers of the Year.

ONE of the fastest of this year's crop of express cruisers is Lucetta, owned by De Ver H. Warner, of Bridgeport, Conn., and operated from his summer home at Southport, Conn. Lucetta is almost a duplicate of the world-famous Countess, although she is very solidly constructed and is somewhat larger.

Designed and built by William H. Hand, Jr., Lucetta is 42 feet x 9 feet beam, powered with an eight-cylinder model M-8 Van Blerck engine, which gives the boat a speed slightly in excess of twenty-eight miles per hour.

This is a typical express day-cruiser with a trunk cabin of ample size for the requirements of such a boat. The after cockpit is a very roomy affair, in which large comfortable chairs are placed. This boat is designed and built for off-shore fishing and cruising trips, where speed and seaworthiness are essential characteristics.

The power plant in this boat is equipped with a Van Blerck fuelizer which makes possible a complete range of speed from three miles per hour to twenty-eight miles per hour without any back-firing or choking. With this attachment it is as easy to maneuver this boat as it is an automobile.

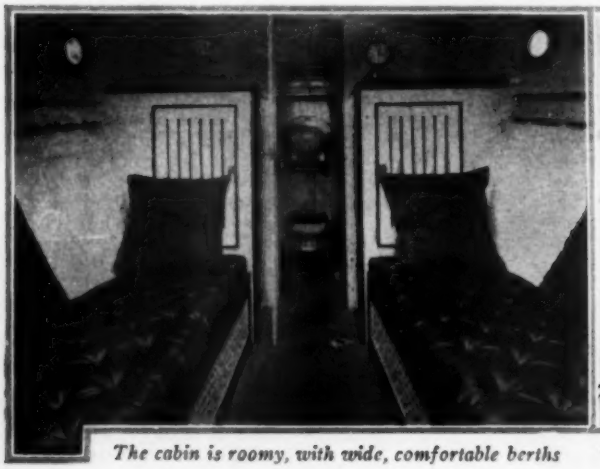


Lucetta, under way rides easily and does not throw much spray

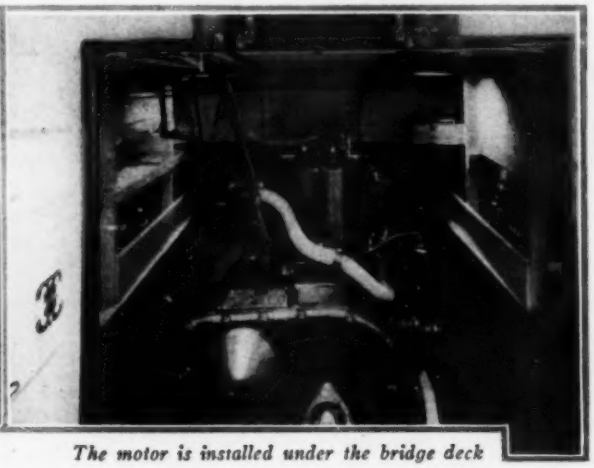
Photographs by M. Rosenfeld

One of the troubles experienced by owners of boats of this type in the past has been that they were very satisfactory at high speeds, but were very difficult to handle at low speeds—owing to the inability to throttle the big high speed engines down to a low speed, which is so essential in pulling up to a dock, or when fishing, etc. Consequently this new development by the Van Blerck engineers is a very important one and has materially added to the pleasure, comfort and safety of the present day type of express cruisers.

For all around sport purposes and fishing for big game fish nothing in the form of a boat can excell one of these modern type express cruisers. High speed, while not an essential for the actual operation of fishing is nevertheless desirable in that it enables the sportsman to go a greater distance out to the best fishing grounds and also permits him to indulge in his favorite pastime until the very last moment. Then it is only a matter of minutes before the powerful motors with the high speed which they make possible will enable the proud fisherman to display his catch to the admiring assemblage of yachtsmen at the clubs and return again to the ease of the hotels.



The cabin is roomy, with wide, comfortable berths



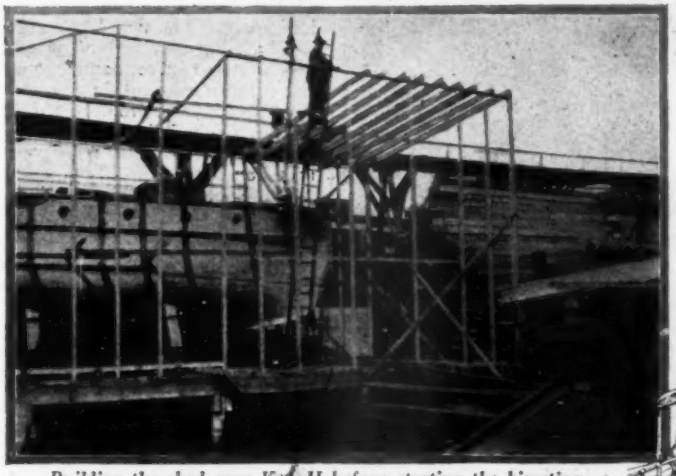
The motor is installed under the bridge deck

A Major Operation De Luxe

How One Enthusiastic Motor Boatman Outgrew His First Cruiser and What He Did to Make Her Better Suit His Needs—An Excellent Example of What an Amateur Can Do By Careful Planning—Danger of Profiteering Eliminated

By Frank P. Huckins

Photographs by Stebbins



Building the shed over Kex II before starting the bisecting

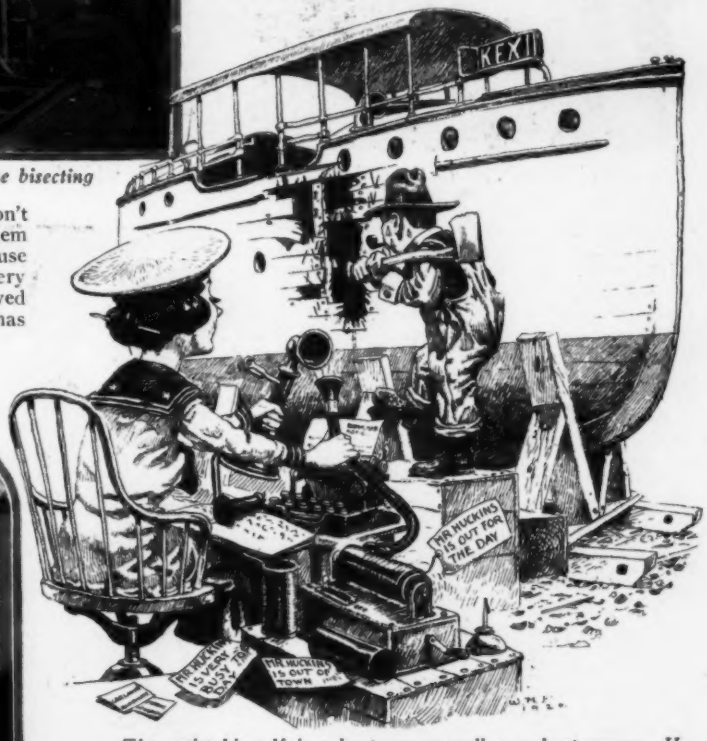
AS between Chapman and Stebbins, I don't know which is worse. You all know them both. You can't help it. Chapman, because he edits this livest of yachting papers and at every motor boat race has that inquiring face of his shoved up in front of the camera. Stebbins, because he has been taking superlative marine photographs of every yacht afloat since the Mayflower was

The original Kex II was a cruiser in every sense

pushed overboard and because you can't conduct any yachting activity in this part of the country and not find his finger in the pie.

Anyway, Stebbins paraded into my boathouse this morning followed by his man Friday adorned regardless with cameras. He announced that Chapman said I was cutting my boat in halves, told him to take some pictures and to get an article out of me. Chapman has been aboard my boat. He knows perfectly well that it is called "Huckins' Barge." He doubtless believes she will break in two after being lengthened. At least he wonders how much worse she will look this time. Just plain, morbid curiosity!

Kex II was built in 1914. She was 38' long 10' 6" beam, drew nearly 4' and her displacement was exceeded in Lloyds Register by but one yacht of her length—a houseboat. In fact, George Lawley once likened her to a bathtub. She was powered with a four-cylinder Sterling, and in spite of a speed of but seven knots, explored every nook of the New England Coast and most of New Brunswick. She rolled her rail under. She dipped up green water over the stem. She



The artist himself is a boatman as well as a boat-owner. He has original ideas about lengthening out a boat

bucked some terrible tide rips in the Bay of Fundy, but in five seasons she never put in on account of weather.

Now comes her metamorphosis. The same beam that is awful in a 38' boat is neat but not gaudy in a sixty-footer. With no disrespect to the boatbuilders, who earn every cent they make, I needed exercise. Over the water in an unused corner of our dock, we had a marine railway and platform erected; a work that was necessarily done by a contractor. With this as a foundation and with the help of a couple of men stolen from their legitimate work, which was anything but carpentry, we built ourselves a boathouse, measuring 80' by 20' by 20' high. Oh, those gentle April zephyrs that swung me about, clinging to the top of a two by four like the veritable missing link! If any of you are tired, skinny business men, try building a boathouse. It beats golf, doctors, poker or any other manly sport.

When complete, the boathouse was equipped with a small universal circular saw, a little buzz planer, a band saw, a grinder, an electric drill, tools that are reasonable in price

Huckins' boudoir, where the cruising genius plans trouble whi'e his house carpenters do the work

or at her widest point. The bow had fair lines and with the excessive breadth readily lent itself to the lines of a sixty footer. It so happened that an 1800 pound iron keel, four inches thick and nearly a foot deep, came directly under the point of severance. Thus when the wrecking was complete half of the old iron keel extended into space. The new keel, with its shaft log and fashion piece, was built to conform and a long scarf joint was cut in the old oak above the iron. Three quarter inch bolts, spaced on eighteen inch centres were run up through the iron keel for its whole length and effected a joint that was fully as strong as in an all-new hull. In a keel built wholly of oak an equally satisfactory job could be obtained by making a longer scarf —five or six feet—and bolting on a heavy keelson, with its joints six or eight feet forward and aft of the keel splice.

The framing was in nowise different from a new hull, using oak one and three quarters square on nine inch centres.

(*Continued on page* 94)

even at present and do much to decrease cost of production. Each was individually electrically driven with second-hand motors. Steam for bending frames, heating the place in winter and running an old hoist that was resurrected from the junk pile to pull the boat out was drawn underground from the boiler of a nearby steam derrick. At the end of the building, on a sort of mezzanine floor, we built a den, now known as the "Boudoir." It is the piece de resistance of the plant. Old cushions from the boat offer rest for the lazy, a fine old cookstove picked up for eight dollars at a junk store offers heat for the cold, a telephone satisfies the demands of business, walls adorned with the covers of MoToR BoatinG and memorabilia of past yachting pleases the eye and a collection of cast-off furniture completes the picture. The only trouble with this outfit is that I cannot keep my friends away. I might almost say that this has taken the place of the saloon, were it not that my friends are all temperate.

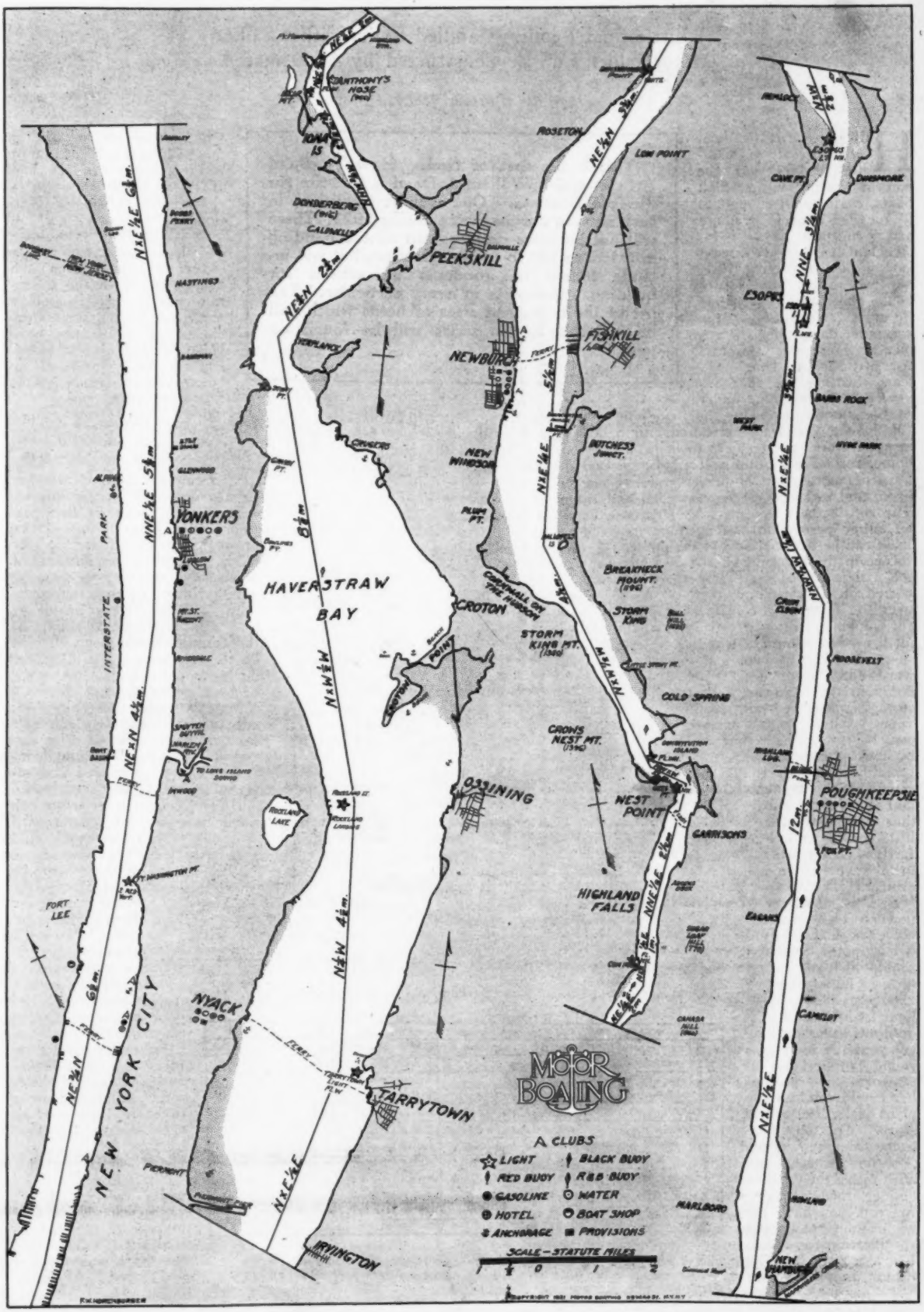
Now to return to the boat, two yacht carpenters, whom I was lucky to get, skilled men of the old school, the kind that give an honest day's work for an honest day's pay, started in on the 26th of August. In two months and three days the old boat was torn asunder, the new keel joined, was framed and planked complete, with little on the exterior to show that she is not a new boat from stem to stern. Any motor boat with enough beam and draught and with a fair bow and stern can be cut at the mid-section and have additional length inserted amidship. The problem is one of perfect alignment, maintaining fair lines and splicing the joints far enough fore and aft to get strength. You cannot cut a boat in two the way you would open a can of beans and tack in a new section without having the two ends part company in the next seaway you steer into or at least "weaves" in a way that will keep the seams open and leaky all the time.

In the case of Kex II, her stern was so impossible, being the old fashioned pointed affair, that addition amidships was out of the question. We therefore kept the forebody, scrapped the stern, the theoretical cut being 22' from the bow

Three views showing the lengthening work in various stages of completion

Motor Boatmen's Chart No. 15—Hudson River, New York to Kingston

For Use with Coast and Geodetic Survey Charts Nos. 281, 282 and 283



Chum, a 16-Foot Motor and Sail Craft

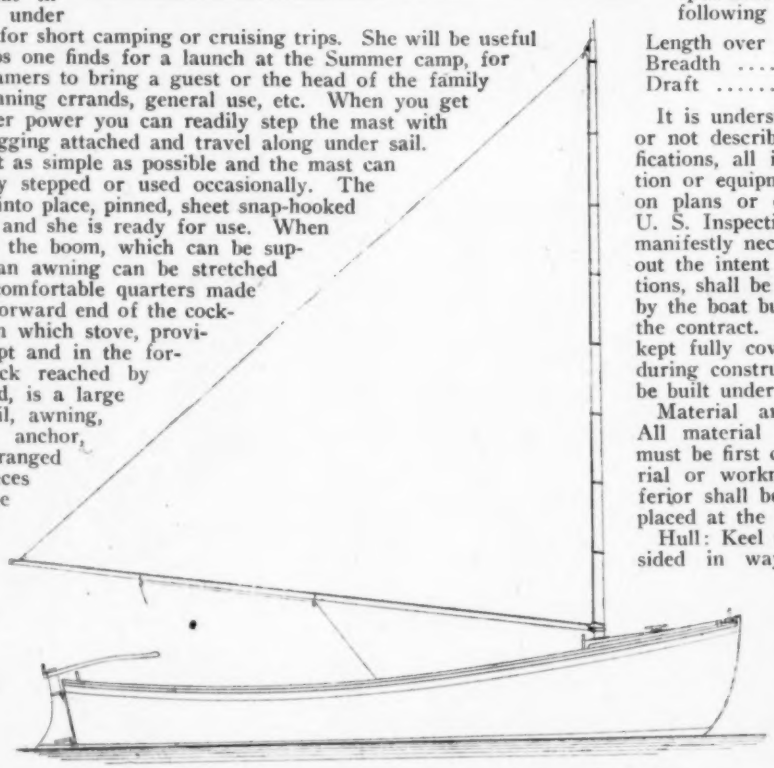
A Little Boat Readily Handled Under Either Sail or Motor Which Can Be Constructed by Any Amateur

By William J. Deed

This is the first of twelve How To Build Articles which William J. Deed is to write for MoToR BoatinG. One will be published in each issue of our magazine during 1921. These will not be mere designs with all the building instructions left to the imagination, but will include honest to goodness instructions for building. Complete in every particular. The list of the types and sizes of boats which will be included in the series will be found on page 28.

HERE is a little boat with great possibilities. Most of the fun in boating is in small boats, craft small enough to be handled entirely by one's self. In these days of retrenchment many are buying small boats involving little expense rather than larger boats, and many of these little craft are operated by the sons or daughters of the owner. Here is a wee craft for just such to run, or to learn boating in, that involves little expense, under $1,000, equipped even for short camping or cruising trips. She will be useful for the many odd jobs one finds for a launch at the Summer camp, for meeting trains or steamers to bring a guest or the head of the family home, for fishing, running errands, general use, etc. When you get tired of running under power you can readily step the mast with boom and sail and rigging attached and travel along under sail. The rig has been kept as simple as possible and the mast can be either permanently stepped or used occasionally. The mast can be dropped into place, pinned, sheet snap-hooked to eye in the thwart, and she is ready for use. When the sail is furled on the boom, which can be supported on a crotch, an awning can be stretched over the boom and comfortable quarters made for a night. In the forward end of the cockpit are two lockers in which stove, provisions, etc., can be kept and in the forward end, under deck reached by doors in the bulkhead, is a large storage space for sail, awning, ropes, fishing gear, anchor, etc. Berths can be arranged by hooking canvas pieces on either side of the center-board trunk and aft of same and thus transform the little craft into a fairly comfortable little week-end cruiser.

Sail is auxiliary power; the main power is in the 4 to 6 h.p. motor, which should drive this little Chum along about 7 miles an hour. She is husky, designed to last as long as you need her, is round bottom, and as seaworthy as a boat of her length can be. The plans tell the whole story. The specifications are given in order that in case you wish to have your boat builder turn out one for you, you have the whole thing, plans and specifications, as a basis for a contract. The Editor and the writer will be very glad to take up any questions which come up in the minds of MoToR BoatinG readers.



Outboard profile and sail plan of Chum. Scale, ¼ inch equals one foot

	STATIONS	STEM	1	2	3	4	5	6	7	T
HEIGHTS FROM BASE	TOP OF RAIL	46.0	4.2.0	3.10.2	3.6.6	3.4.1	3.2.4	3.2.1	3.2.7	3.5.2
	RABBET		1.3.5	1.0.0	0.10.3	0.9.1+	0.9.2	0.11.0	1.2.7	1.8.4
	KEEL BOTTOM		1.2.0	0.10.0		STRAIGHT			0.1.0	
	SECTION A		2.5.2	1.4.3	1.1.0	0.11.4	0.11.3	1.1.5	1.5.3	1.10.1
	B			1.11.6	1.4.5	1.2.0	1.1.5+	1.4.0	1.8.1	2.1.3
HALF-BREADTHS	TOP OF RAIL		1.5.3	2.5.0	2.10.4	3.0.2	2.11.5	2.9.2	2.5.3	1.11.0
	W.L. 1		0.10.5	1.11.4	2.8.6	3.0.3	3.0.1	2.9.6	2.5.4	1.11.2
	W.L. 2		0.8.0	1.8.2	2.6.6	2.11.5	3.0.0	2.9.2	2.4.2	1.8.2
	W.L. 3		0.4.6	1.3.3	2.2.0	2.8.6	2.10.0	2.6.0	1.8.4	0.4.0
	W.L. 4		0.2.5	0.11.2	1.8.3	2.4.5	2.6.6	2.0.5	0.11.1	
	W.L. 5			0.6.4	1.1.6	1.9.0	1.10.4	1.2.0		
DIAGONAL			0.9.6	1.7.3	2.1.4	2.5.4	2.6.1	2.3.1	1.10.0	1.4.1

Tables of offsets for building Chum—offsets are given in feet, inches, and eighths to outside of planking: 3.4.1 *reads* 3 *feet,* 4⅛ *inches*

In General: It is the intent of these specifications to cover the construction and equipment (with the exception of motor, shaft, stuffing box, stern bearing, motor exhaust and equipment, propeller, and the work of installing the motor) of an open auxiliary launch of the following dimensions:

Length over all.....16 ft. 6 in.
Breadth ..... 6 ft. 0 in.
Draft ..... 1 ft. 9 in.

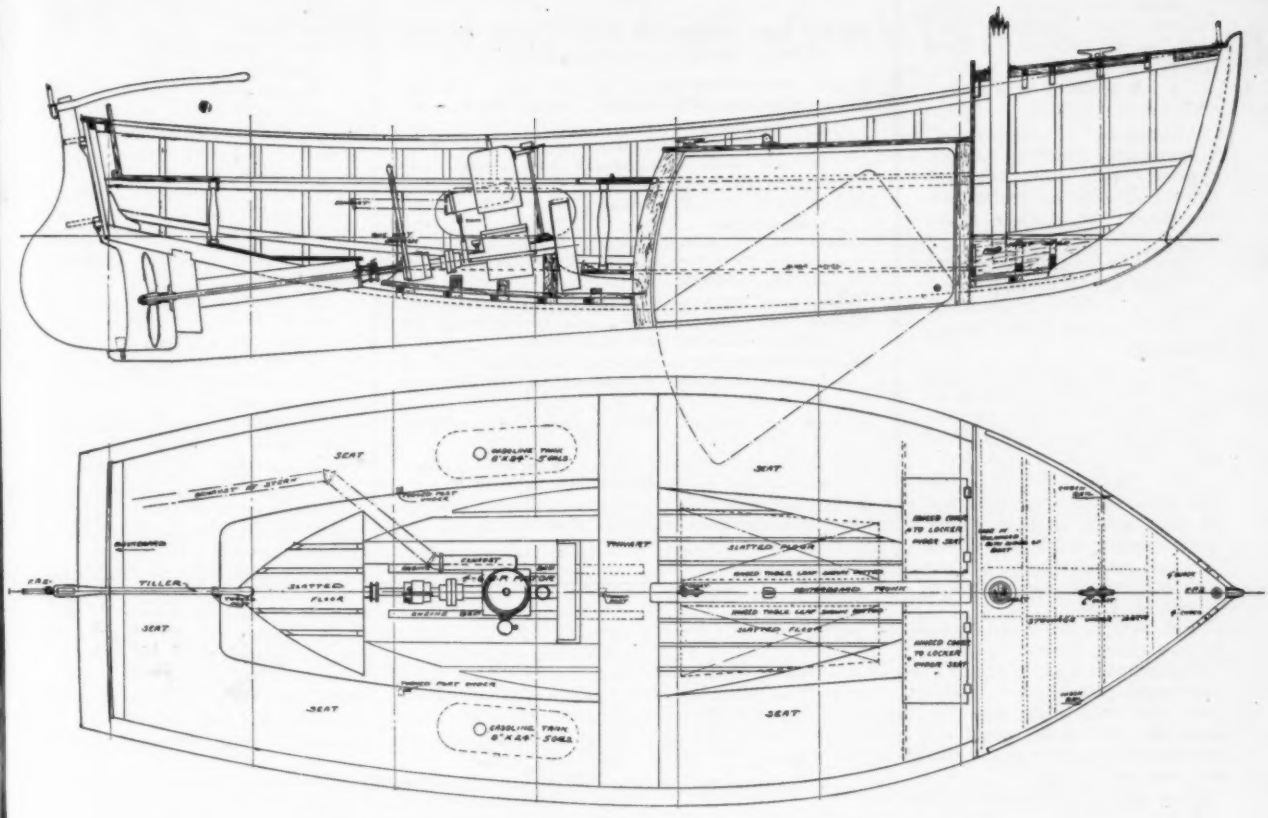
It is understood that, whether or not described in these specifications, all items of construction or equipment, either shown on plans or called for by the U. S. Inspection regulations, or manifestly necessary to carrying out the intent of these specifications, shall be done or furnished by the boat builder as a part of the contract. The boat shall be kept fully covered by insurance during construction. Boat shall be built under cover.

Material and Workmanship: All material and workmanship must be first class and all material or workmanship found inferior shall be removed and replaced at the builder's expense.

Hull: Keel to be of white oak sided in way of centerboard trunk 3¼", and forward and aft of same to be sided 2". To be molded as per plan. Slot 1⅛" wide by 4'-3½" to be cut. Keel to be in one piece.

Stem and Apron: To be of white oak sided 2", molded as per plan. Stem to be beveled to face ½" and bound with galvanized half-round. Stem and apron to be well fastened to each other and to keel by four ¼" diam. galvanized rods riveted.

Shaft Log: To be of white oak sided 3", molded 4¾", secured to keel by ¼" galvanized drift bolts, bored for shaft, ends squared and faced. At lower



Arrangement plan and inboard profile. Scale, ⅜ inch equals one foot

edge shaft log is to be reduced to 2-inch siding of keel.

Stern Post: To be of white oak sided 3″, molded 4½″, secured by tenon to horn timber and secured to keel and horn timber by ¼″ diam. galvanized rod. To be reduced to siding of keel.

Horn Timber: To be of white oak sided 3″, molded 3″, rabbetted for planking, secured to filler and shaft log by galvanized rods.

Transom: To have framing around all edges and at center running vertically and at quarter breadth running vertically of white oak 1¼″ x 1½″. Transom frame to be reinforced by 1¼″ knee riveted in place. Transom to be ⅞″ cedar, cypress, or white pine, or well-seasoned white oak boards, secured by galvanized screws, countersunk and plugged.

Centerboard Trunk: End logs (uprights) to be of white oak 1⅛″ x 2½″ forward and 1⅛″ x 3″ aft, to be mortised into keel and well fastened. Fore and aft on each side of slot white oak lower logs, sided 1¼″ and molded 2¼″, shall be fastened in place against uprights and to keel. These to be notched for frames. Balance of trunk to be of ¾″ white pine or cedar, made watertight by light caulking at seams. Cap to be oak 1″ thick, edges neatly rounded. Centerboard to be ⅞″ white oak weighted at aft lower end sufficiently to sink board, and pinned by ¾″ diameter galvanized bolt with washer under head and under lock nuts. Cleat and fairlead with pennant to be provided. On each side of trunk a hinged table leaf to be arranged. All parts of centerboard trunk to be carefully put together and set with thread of calking cotton soaked in white lead for watertightness.

Frames: To be of young white oak, 1″ x 1″ spaced 8″ on centers,, steam bent into place so far as possible, those in ends of boat and amidships in way of centerboard trunk to be set in notch in keel, stem, horn timber, or bed logs. Frames to be fastened to keel, etc., by galvanized boat nails.

Floor Timbers: To be of white oak 1″ thick, molded as per plan. Floor timbers in way of engine bed to be 2″ thick. All floor timbers to be fastened with galvanized rod. Limbers to be cut in all.

Planking: Garboard and sheer strake to be of white oak finished ⅞″; balance of planking to be of white cedar, cypress, or white pine to finish ¾″ thick, to be laid smooth planked construction with narrow strakes, planks in full lengths, laid with tight seams lightly caulked with cotton and filled flush with seam composition. Lower edges of garboard and hood ends of plank to be fastened with 1⅛″ No. 8 brass screws, heads countersunk and plugged. Balance of planking to be fastened with copper wire nails riveted over burrs, two fastenings in each plank, except three in garboard, at each frame.

Rudder: To be of white oak 1″ thick, secured to transom by rudder strap braces and supported at heel by ½″ diam. brass pin into keel. To be fitted at top with ash tiller 1¼″ diam., tapered to shape.

Gunwale Clamp, Riser, and Bilge Stringer: These to be 1″ x 2″ spruce, Douglas fir, or yellow pine full length. Riser to be located so as to run horizontally in way of seats as shown. Each to be riveted to each frame by galvanized wire nail.

Keelson: To be 3½″ x 1″ white oak, secured on top of frames by floor timbers and their fastenings.

Mast Step: To be 1¼″, securely fastened to floor timbers over which step is notched. Mast to be slotted to fit over step with ¾″ diam. bolt, with nut and washer to secure heel of mast in place.

Deck Beams: To be oak 1″ x 1½″, secured at ends to clamp. Oak fillers to be fitted between beams, as indicated, and fastened to beams.

Breasthook: To be of oak 1¼″ thick, secured in place by galvanized rods driven through stem and clamps.

Seats and Thwart: To be ¾″ thick, supported by oak framing and turned posts as shown.

Flooring: To be laid slatted with ¾″ between boards. To be ¾″ pine, cypress, or oak boards in widths as shown. Opening 4″ diam. to be left near motor so that hand bilge pump can be inserted to reach to bottom of boat. Flooring nailed in place.

Engine Bed: Fore and aft bed logs to be of 1¾″ oak molded as deep as possible under motor, securely riveted by ½″ diam. galvanized rivets to 2″ oak floor timbers, latter riveted to keel and fastened to frames.

Deck: To be ¾″ pine, cedar, or spruce, tongued and grooved, fastened to beams and covered with canvas laid

in thick wet paint. Chock rail of oak, 1" wide by 1¼" high, to be secured by long screws on deck. Coaming ¾" thick secured at aft end, ends neatly rounded.

Bulkhead: To be of ⅜" tongued and grooved pine or cypress, with door cut and fitted each side of center line for access to storage space under deck.

Mast: To be of Oregon pine 3" diam. at deck, tapered nicely to 2" diam. at shoulder. To have slot cut at heel fitting over step.

Boom: To be of Oregon spruce 1¾" diam. tapered at ends, fitted to mast with galvanized gooseneck band. Pine boom crotch to be provided.

Sail: To be of No. 10 cotton sail duck, laced to boom, fitted to mast hoops on mast, fitted with halyard and block. Sheet to have snap hook for attaching to eye in thwart and with blocks on boom.

Rub Strake: At sheer a white oak molding 1" half-round to be securely fastened.

Equipment: Two 8" x 24" five-gallon seamless steel gasoline tanks properly set in chocks, strapped in place, fitted with vent, with filling pipe threaded into filling deck plate in seat and with outlet fitted with ground key cock and ¼" seamless annealed copper tubing led to ground key cock, strainer and carburetor.

Bow and stern flagpole sockets.
8 ft. boat-hook.
Fire extinguisher.
Dory compass.
Rowlock sockets and pair of 8 ft. oars.
Four life preservers.
Two 4" galvanized chocks.
One 6-inch galvanized cleat.
Four 4" galvanized cleats, one on centerboard trunk, one each side of boat aft for sheet, and one on mast for halyard.
Four rope fenders.
Flagpoles bow and stern and American yacht ensign.

TYPES AND SIZES OF BOATS FOR WHICH DESIGNS WILL BE PUBLISHED IN 1921

16-foot combination motor and sail boat. Cat rig.
20-foot auxiliary cabin cruiser. Motor and one sail about equal power.
25-foot open family boat something on the order of yawl boat or Hampton boat model, seaworthy and fast enough.
25-foot auxiliary cabin cruiser. Sloop rig. 50-50 combination.
30-foot open runabout type. Faster and more snappy than No. 3 boat. A seaworthy round bottom runabout.
30-foot auxiliary yawl with motor auxiliary to sail.
32-foot shoal draft cruiser. An International 32 with 2 foot draft in tunnel stern.
35-foot cruiser. A real snappy raised deck, round bottom cruiser developed from International 32.
35-foot day cruiser. Bridge deck type. Faster than No. 8.
A small shoal draft boat which will be able to navigate in any water deeper than a heavy dew.
40-foot auxiliary sloop, motor secondary power.
Plans of a number of dinghies of about 10, 12 and 14 feet in length.

Set of oil running and anchor lights.
Brass mast plate.
Fog bell.
Portable bilge pump.
Fog horn.
20-pound galvanized kedge anchor and 100 feet of 1½" cir. manila.

Painting: Entire interior and exterior of hull to receive priming coat of paint except work which is to be finished natural.

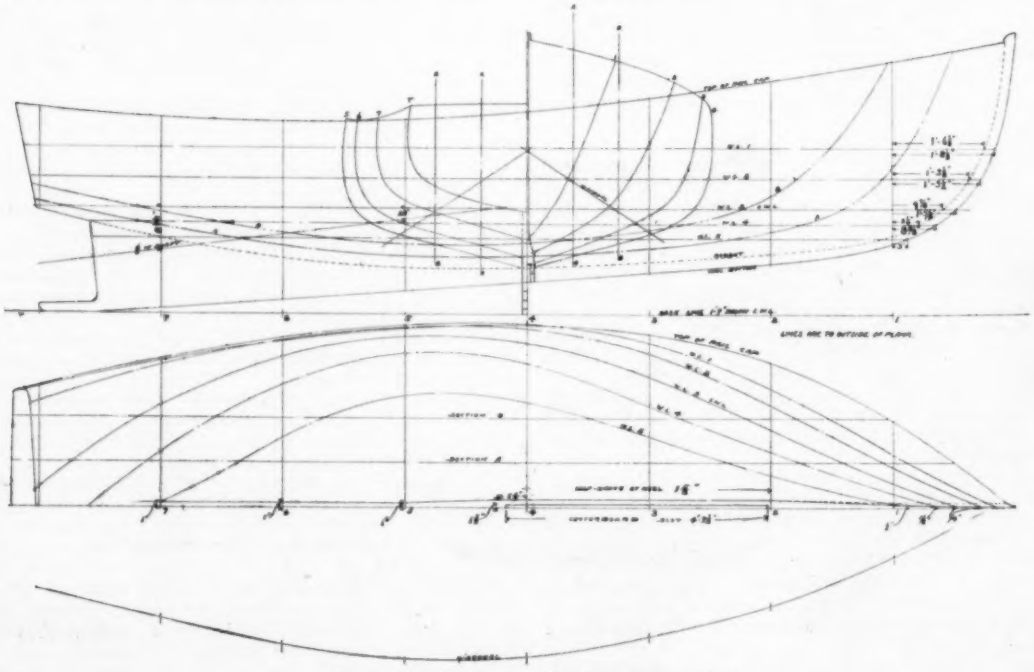
All natural finish to receive coat of filler and three coats of best spar varnish.

Interior to be painted three coats of gray paint to suit taste of owner.

Exterior below the painted water-line to receive two coats of best anti-fouling copper paint and above the painted water-line three coats of best yacht white. Deck painted two coats of salmon deck paint.

It is natural to assume that anyone who aspires to own and build a boat of this sort for himself is also a good mechanic. Plenty of spare time and patience are essential. Reading the specifications and studying the drawings are not sufficient in themselves. The requisite skill of eye and hand can only be acquired by practical experience. Whether this little boat is built by an amateur or professional builder, its simplicity is a commendable feature.

The designer has carefully studied the relation of weights, sail areas, displacement and other vital proportions and dimensions. Too much cannot be said about the risk involved in haphazard altering of the design. The untrained amateur builder is advised to take up questions involving the possible rearrangement of the boat and its components with the designer. It would be very unfortunate for the amateur to expend a large amount of time in building the boat from his own improved plans and have it result in a failure. The designer cannot accept responsiblity for the successful performance of the boat unless the plans are followed in all particulars. The matter of altering any design is at best a ticklish proposition.



Lines of Chum. Scale, ⅜ inch equals one foot

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the March Prize Contest

1. When at anchor how do you keep your dinghy which is tied astern from coming alongside and banging the top-sides when the wind or current happens to be unfavorable.
(Suggested by C. E. P., New York, N. Y.)

2. Describe and illustrate a storm-proof arrangement of drop side curtains for the cockpit of a moderate sized raised deck cruiser, showing method of fastening to deck and gunwales, also method of fastening when furled up.
(Suggested by W. E. M., Philadelphia, Pa.)

3. Suppose your boat parts her cable and is driven ashore in a blow, being left on a beach above highest normal tides, but undamaged. How would you proceed to get her afloat.
(Suggested by J. G. H., Dunedin, Fla.)

Rules for the Prize Contest

ANSWERS to the above questions for the March issue, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (a) in our hands on or before January 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before January 25. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of MoToR BoatinG of which the advertised price does not exceed $25, or a credit of $25 on any article which sells for more than that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR BoatinG of which the advertised price does not exceed $5, or a credit of $5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

To Keep Drinking Water on the Long Cruise

Suggestions for the Proper Methods of Carrying an Ample Supply of Fresh Water and How to Keep It Potable

Answers to the Following Question Published in the November Issue:

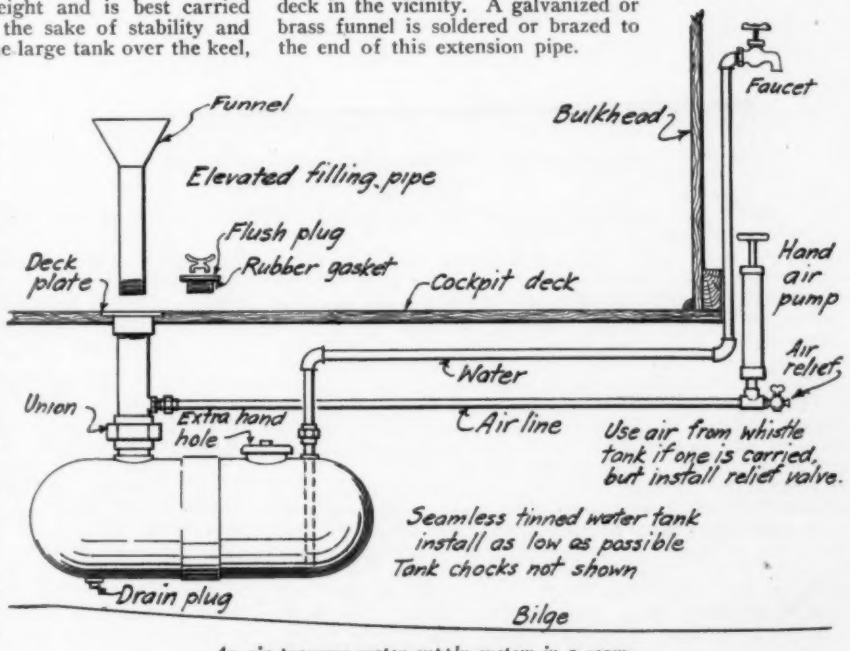
"What method have you found best for keeping the supply of drinking water on a long trip or give sketches of an ideal water supply for a long cruise."

Drinking Water Tank for Long Cruise

(The Prize-Winning Answer)

THOUGH the supply of drinking water should be replenished as often as possible on a cruise, where good water is obtainable, the old supply being thrown out, it is here assumed that a considerable quantity must be carried, as for a long salt water cruise. This quantity of water will have considerable weight and is best carried well down in the hull, both for the sake of stability and convenient stowage. Whether one large tank over the keel, or two wing tanks were to be used would depend upon the form of the hull and its behavior in rough water. Here it is assumed that one large tank is to be used, though two would be installed the same way with the necessary regulating valves. A seamless steel tinned tank has several advantages, providing the interior can be reached for scrubbing out through the filling opening. Should the tank be too long, another opening may be cut and a flange and screw plug fitted in the other end. The flange would be curved to fit the outside of the tank and secured by small bolts through flange and tank, with lead or leather gasket, set in white lead, between. Such a tank is strong and the inside is smooth and easily kept clean, the single disadvantage being the lack of interior splash plates. The water splashing about in a large tank is very annoying at night while sleeping aboard at anchor.

Such a tank is best installed beneath the cockpit floor, but unions and chocks should be so installed that it may be easily removed for inspection and cleaning. The cabin is a bad place for the water tank, as some will always be spilled about while filling. If beneath the cockpit, the filling pipe is brought up through and a flush plug set into the deck. To prevent dirt being taken into the tank while filling, an extension pipe is screwed into the deck plug, after cleaning the deck in the vicinity. A galvanized or brass funnel is soldered or brazed to the end of this extension pipe.



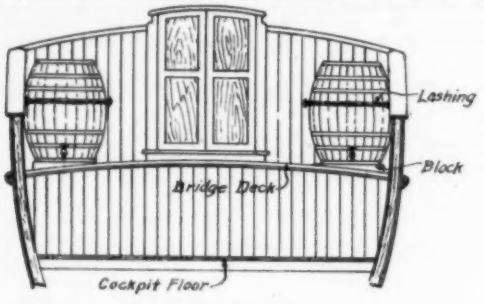
An air pressure water supply system in a seamless steel tinned tank is suggested by H. H. P.

To draw the water, a hand suction pump may be used, but a more sanitary arrangement would be to force air into the tank, thus allowing a clear supply pipe, only a faucet at the end in the cabin being required. The water supply pipe should be let down into the tank from the top; a bottom outlet would mean that the water would always be standing in the pipe. The air inlet pipe should, for a similar reason, enter the tank at the top; a convenient method being to tap it into the filling pipe as shown. If the deck plug should not fit tight, a rubber gasket must be fitted to it to prevent the escape of air. If the boat has a supply of compressed air for the whistle, this can be piped to the water tank, though a relief valve should be installed to avoid a too high pressure, unless the water tank were itself a pressure tank. An air pressure gauge would also be of advantage. Lacking a compressed air supply, a small hand air pump is installed near the water faucet; in any case, a relief cock must be placed in the air line to relieve the air pressure in the water tank.

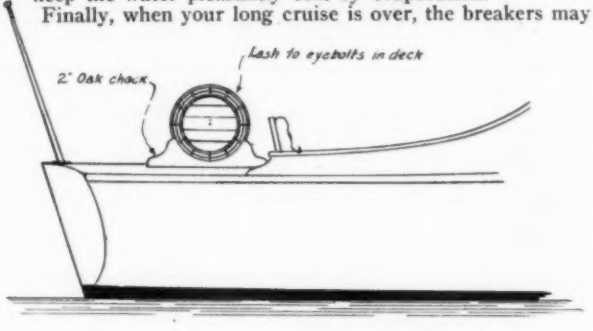
H. H. P., Oakland, Cal.

Carry It in Wood

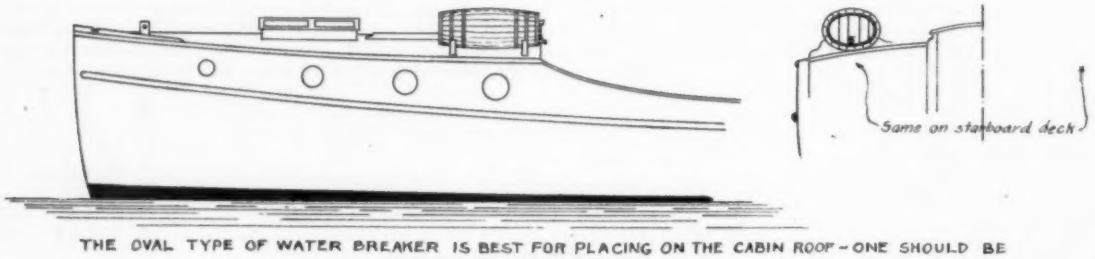
ASSUMING that the regular water tank on your cruiser is of insufficient capacity for a long cruise, I think the ideal way of taking an extra supply is in wood containers, known ashore as kegs, casks, or barrels, but called by sailors water breakers, if small, and water butts in large sizes, also called scuttle-butt on war ships.



CARRYING A SUPPLY ON THE BRIDGE



A ROUND WATER BREAKER ON THE AFTER DECK



THE OVAL TYPE OF WATER BREAKER IS BEST FOR PLACING ON THE CABIN ROOF - ONE SHOULD BE PLACED ON EACH SIDE.

Suggestions by J. G. H. for carrying spare supply of drinking water in wooden water breakers

For thousands of years—in fact, up to the recent invention of the iron and steel ship—all drinking water on ships and boats was so carried. And to this day wood keeps water better than metal tanks. The wood is somewhat porous. It seems to let the water breathe and keep it fresh, avoiding the flat taste of water from metal tanks.

There are other advantages for small boats. The containers cost less than metal tanks of good quality, do not have to be specially made, look neat and shipshape, and are easily adapted to and secured on any boat.

Small water breakers, from 5 to 20 gallons capacity, are obtainable from any marine supply house, in both round and oval shapes, and list at prices from $3.50 to $20.00, varying according to size, shape, and whether fitted with galvanized or brass hoops. However, wine and beer kegs are now a drug on the market, thanks to a certain amendment, and can be secured for a nominal price almost anywhere. Cleaned inside and varnished outside, they will do nicely.

The sketches show several ways of securing breakers on deck and in the cockpit. Select the location that suits your boat or your fancy best. The conventional type of raised deck cruiser is shown in the drawings, but a good location for a breaker will be found on any size and type of boat. They are particularly good on open boats and others with no regular built-in water tanks.

When set vertically on the bridge deck or cockpit floor, blocks should be placed under to prevent the sharp edges of the hoop cutting the deck, and a pad of canvas should be tacked to the bulge to prevent marring the bulkhead. When laid on the side, chocks of 1½ or 2 inch oak should be fitted. In either case, lash the breaker in place securely with several turns of ¼ inch line through eye bolts (not screw eyes). Remember that water is reasonably heavy, and 20 gallons of it will weigh more than the average man.

With a breaker on the cabin roof, a short length of rubber tubing may be taken from the cock through a port to the galley sink. This is very convenient. The high placement of weight will make for easy motion and will not hurt the stability of the average boat, supposing, of course, you draw from both breakers and do not get one empty with the other full.

Of course a breaker may be placed in the cabin, if there is room to spare, which seldom is the case. In hot weather a piece of wet canvas or burlap over a deck breaker will keep the water pleasantly cool by evaporation.

Finally, when your long cruise is over, the breakers may be unlashed and sent ashore in a jiffy—if you want to. But I know at least one man who was so pleased with a trial of them that he kept them permanently and thereafter used his metal water tank for gasoline.

J. G. H., Dunedin, Fla.

Prefers Glass Bottles

WHEN cruising on our rivers or along the coast good water is generally obtainable every day. A stone jug of cold spring water will keep in potable condition all day if protected from the sun and heat. Wrapping the jug in several thicknesses of heavy paper is an effective method of insulating for excluding heat or cold. A large section of pipe covering would be excellent. By placing the jug of cool water in a large pan of cold water, and wrapping the jug in wet burlap or other absorbent material which is allowed to hang into the water in the pan, the jug and its contents may be kept several

(*Continued on page* 110)

Making the Small Cruiser Accessible

Devices for Getting To and From the Small Cruiser When It Is Secured to the Mooring

Answers to the Following Question Published in the November Issue.

"What is the most convenient method of getting access to small cruiser at its moorings, regarding the maintenance of the tender, oars and spare equipment ashore or afloat?"

Small Dinghy the Favorite

(The Prize Winning Answer)

UNDOUBTEDLY the most convenient method of obtaining access to a small cruiser at its moorings is by rowing out to the cruiser in a small round bottom, clinker built (lap-strake) tender. We are using a small tender of this description and cannot possibly conceive of any more convenient way of reaching our boat when at anchor than by using this little dinghy. The dimensions are, over all length, 9 feet; beam, 3 feet 7 inches; depth amidships, 15 inches. Carrying capacity, three heavy weights or five medium. The buttock lines are long and the ends quite full so that there is none of that tendency to tilt up on end when one person leaves the boat, and the other is still seated in the stern, so often noticed in small dinghys of this size. The stability is unusual for a boat of this size and a person can safely stand up in her, walk around and place their weight anywhere they wish without danger, making it easy to put people aboard the cruiser or transfer them to the dinghy.

The principal reason this boat has been so successful and convenient to use is because of her small size, light weight, great carrying capacity and easy handling qualities under oars. Being of light weight (less than 100 pounds), it is easily pulled up on the float or beach by one person and usually with one hand. This saves a lot of bumping and hard usage that a heavier boat would get, because it would be more frequently tied up to the float or beach, to be bumped and pounded by every passing boat. A boat of this size and model certainly leaves little to be desired in the way of a dinghy or tender for the small power cruiser.

As for caring for the tender while at anchor, the cruisers of sufficient size will keep their tender at the end of a suitable boat boom, but the little fellow will usually not bother with this extra equipment. We spliced a 5/8-inch diameter line through a hole in the stem for towing, and as about twenty feet astern proved to be the best place for towing in our case, we spliced a good sized eye in the line at that point so it could be easily placed over the towing cleat.

Good fenders should be provided along each side and particularly at the stem of the dinghy. A good size piece of rope is often used all around the top edge for a fender on the dinghy and this answers the purpose quite well, but if the white top sides of the cruiser are to be kept looking nice, I believe fenders made of white duck or canvas about 2 inches or 2½ inches diameter and filled with cork shavings would prove more satisfactory.

Caring for the tender while ashore is not such an easy problem and will vary greatly with different conditions and surroundings. Certainly a good tender should not be simply hauled upon the beach and left to bake in the hot sun. A float of some kind or at least a smooth planked surface should be provided where the dinghy can be easily hauled out without damage to the bottom. If no better means of housing the dinghy is available, a light shelter roof of thin boards covered with roofing felt or even a canvas top will protect the dinghy from the ruinous effect of continued exposure to sun and rain.

Stations	0	1	2	3	4	5	6	7	8	9	Trans
Half-Breadths											
Deck.....		0-6-5	1-3-1	1-7-2	1-9-1	1-9-7	1-9-4	1-8-3	1-6-2	1-3-6	1-2-4
L.W.L.....			0-7-3	1-2-0	1-5-7	1-7-6	1-7-5	1-6-1	1-3-0	0-6-0	
W.L. 1 above....		0-2-3	0-11-2	1-5-2	1-8-2	1-9-2	1-7-4	1-6-1	1-5-1	1-2-2	0-11-4
W.L. 2 above....		0-3-6	1-1-0	1-6-3	1-9-0	1-9-7	1-9-4	1-8-3	1-6-2	1-3-7	1-2-6
W.L. 3 above....		0-11-0	1-2-1	1-7-0	1-9-0	1-9-7	1-9-4	1-8-3	1-6-2	1-4-0	1-3-6
Heights											
Keel.....		0-11-0	0-8-6	0-8-0	0-7-4	0-7-1	0-6-5	0-6-4	0-6-3	0-6-2	0-6-2
Rabbit.....		1-1-1	0-9-2	0-8-6	0-8-2	0-7-6	0-7-5	0-7-7	0-9-0	0-11-4	1-0-7
Sheer.....	2-7-4	2-6-4	2-4-4	2-2-5	2-1-0	1-11-6	1-11-0	1-10-4	1-10-4	1-11-0	1-11-3
Buttock 6 in. out.		2-3-0	0-11-4	0-9-6	0-9-0	0-8-4	0-8-3	0-8-4	0-9-4	1-0-2	1-1-
Buttock 12 in. out.			1-4-0	0-11-0	0-9-6	0-9-1	0-9-0	0-9-4	0-10-5	1-1-4	1-3-2
Diagonal...		0-8-0	1-6-8	1-11-0	2-1-3	2-2-3	2-2-4	2-1-4	1-11-4	1-8-4	1-7-0

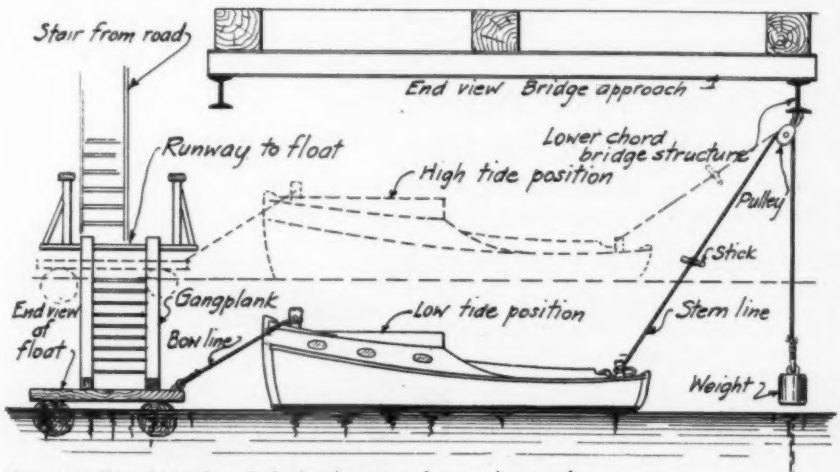
Dimensions in feet, inches and eighths to outside of planking.

When landing and leaving the dinghy in strange places not too remote from the influence of civilization, there is always the possibility of someone borrowing the oars while the owner is absent, in fact there seems to be an even greater tendency to take the oars than the whole boat, and so, in order to counteract this tendency, I've often thought of arranging a short piece of light chain or metal clamp on the main seat so that the oars could easily be secured and locked fast to the boat. The feeling of security thus obtained and the certainty of finding one's oars when returning would more than pay for the slight trouble of using the device.

The lines of the nine-foot dinghy are submitted as representing what we believe, after using it several seasons, to be an almost ideal tender for a small cruiser. Her towing qualities are excellent and the pull on the line at eight miles per hour is 21 lbs.

A table of offsets is furnished so that any one wishing to may build from the plans. The construction is of the ordinary lap-strake, eight strakes being necessary on each side. Planking may be white pine or cedar 3/8 inch x 7/8 inch white oak spaced six inches on centers. In building this boat four moulds were used located at stations 2, 4, 6, and 8.

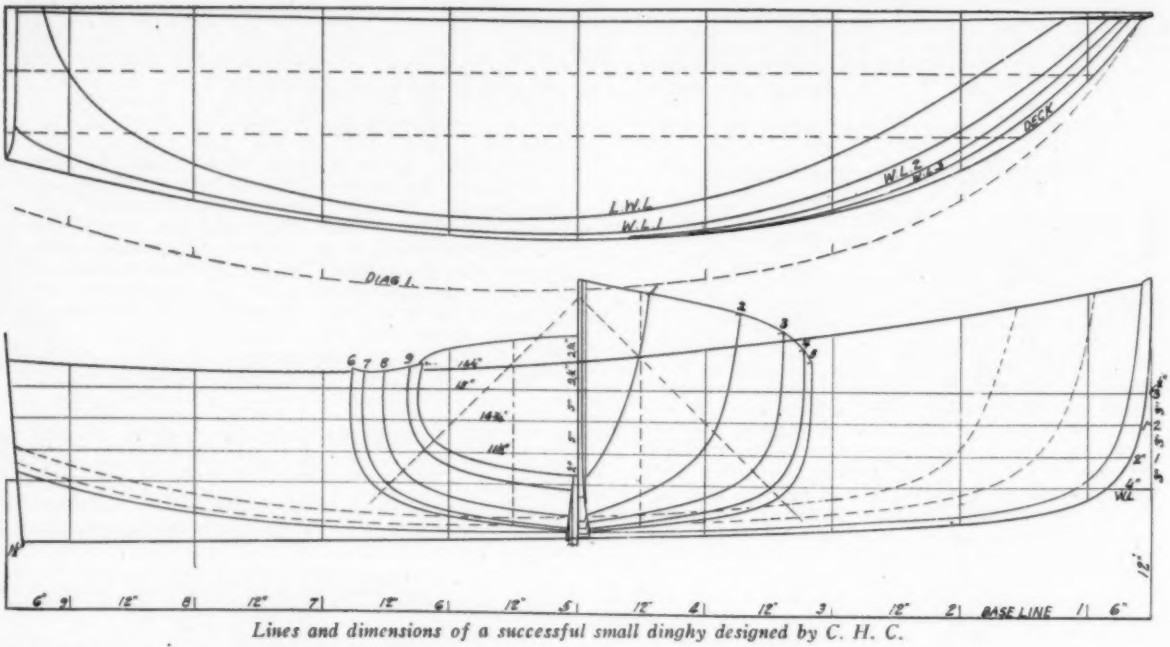
C. H. C., Saginaw, Mich.



Method of mooring employed by H. H. P. at Los Angeles

Novel Mooring For Small Boats

THE method shown herewith for mooring a small cruiser can, of course, only be used under special conditions, but when the location permits, the arrangement in some respects is ideal. The boat is shown moored under a bridge, or, as in the instance to be described, under the steel structure of an approach to a drawbridge over



Lines and dimensions of a successful small dinghy designed by C. H. C.

a tidal estuary. It is obvious that no tender is necessary, which is a great saving of time, expense and inconvenience, especially when returning late at night from a cruise. On the other hand there was considerable trouble due to dirt being blown onto the boats from the bridge above.

In this case, a street car line crossed the bridge, making the location still more convenient and reconciling the boat owners to the annoyance mentioned. The gangway and float were maintained by a party who occupied an ark installed on piles near the runway and who rented the moorings for a small amount per month, cared for the mooring lines and drove away the inquisitive small boys and other undesirables. The bridge approach floor was wide enough to accommodate boats up to thirty feet beneath it, the float running parallel with the approach and the bow lines of the boats being secured to it with ring bolts. The other side was clear for backing out after casting off the bow line, which only needed an eye splice to fit over the mooring bit, and setting free the stern line. To hold a boat in position and prevent its swinging around in the wind or tide and fouling the float or its neighbors, the stern line was run through a block attached to the lower chord of the bridge approach structure and then down below water, a heavy weight on the end always holding the boat clear. As the tide rose and fell, the weight did also. To prevent the stern line from running all the way through the block when released, a heavy stick was bent into the line part way up and when the line was released the stick would bring up against the block, leaving the end hanging

(*Continued on page* 86)

Converting a Sloop to Cruiser

Plans and Suggestions for Altering the Typical Sloop of About Thirty Feet Into a Substantial Motor Cruiser.

Answers to the Following Question Published in the November Issue.

"How would you enlarge the cabin of a thirty-foot sloop so as to make the boat into a motor cruiser?"

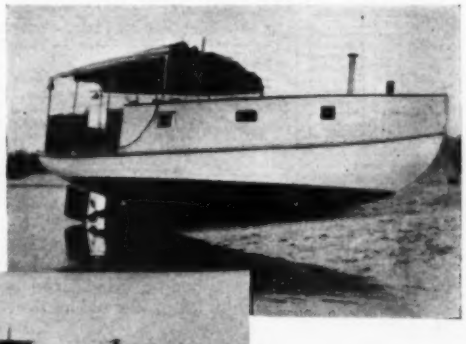
Rebuilding the Sloop

(The Prize-Winning Answer)

THE question of enlarging the cabin of a thirty-foot sloop to make it a motor cruiser, can be answered in a number of ways. The following and the accompanying photographs and drawing show an extremely satisfactory arrangement.

The layout is without doubt the best to be had in a boat of this size. The flush deck provides good room for a number of people with comfortable chairs. The steering wheel with engine controls is in its proper place on the starboard side. The engine is under a slightly raised hatch, with a removable door in front to which the steps are attached. The cabin has two large bunks on each side with a folding table in the center fastened to two posts which support the center of the cabin top. On the starboard side is an ice box, small closet, dish closet and buffet top. On the port side is the best of all, a real stove, with which you can cook and bake a real meal. Then forward through a sliding door is the toilet, with a hatch which is a handy place to stand in when raising the anchor when it's very rough.

The cabin has full headroom. What good is a boat like this if you can't stand up in it. The width of this boat can stand very nicely this



The altered sailing sloop of A. G. W. as a motor boat

height. The ventilation is good, the windows when open on a hot day make the place quite all right.

To begin with it's a lot of work. The entire cabin and deck was removed with the exception of a few deck timbers. The stem and ribs were extended to the required height, provision was made for the sash to slide down in between the planking and the ceiling. The cabin top was constructed of 2 x 2 inch sawed oak carlins 14 inches on centers, with a crown of six inches, with ⅞-inch v-jointed ceiling covered with canvas. The deck aft is 1⅛ x 3 inch white pine properly caulked and plugged, etc.

The skeg was rebuilt with a new shaft hole to take a 1½-inch brass sleeve, the rudder port was moved aft and the rudder cut off. A few very good things I wish to call attention to, one is the large space in which the propeller has to work in, getting good solid water, also the depth of the propeller below the water line. I have been out in rough weather and have yet to hear the engine race, due to the wheel coming out of water. Also the three-inch oak rudder port bearing to protect the lead sleeve of the port from being worn by the rudder post. Also the way the shoe is bent up, holding the rudder above the bottom of the skeg. This is so when the boat lays aground or strikes anything, the keel or skeg will hit ground and not the shoe or rudder. This also gives good protection to the propeller.

The steering gear is substantial and can be operated when going astern as well as forward, this generally can not be done with most steering gears. The rudder post has a 24-inch grooved drum, on which is attached a ¼-inch iron chain which runs on 6-inch cast iron sheaves and connects with about four feet of motorcycle chain running on sprocket wheel on steering wheel shaft. A turnbuckle is used to take up the slack.

Outside along the old sheer line is a 3 x 4 inch yellow pine guard, rounded on the bottom and tapered at both ends. This guard makes a very nice projection to walk on long side the cabin. The cabin side forward has a slight flare which works out to a tumble home at the midships.

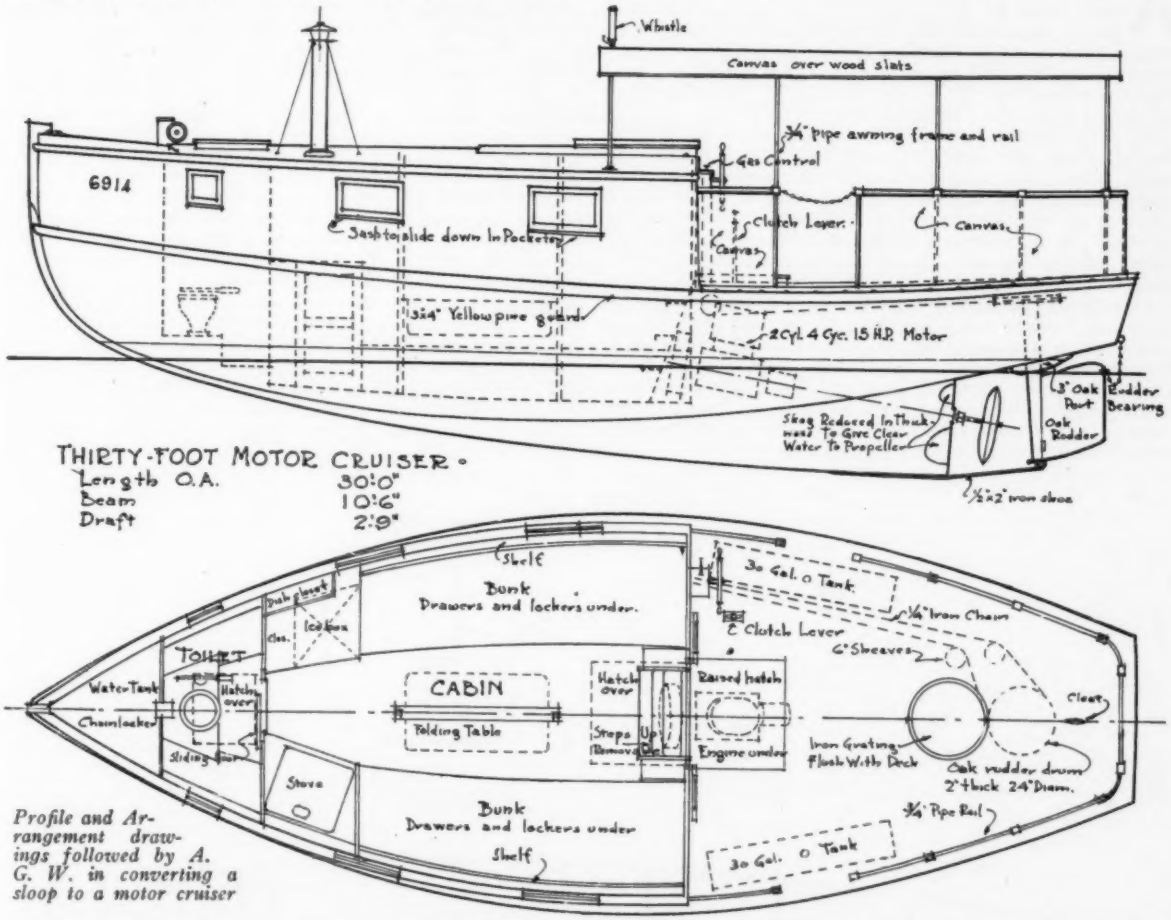
The engine is a fifteen-horsepower, two-cylinder, four-cycle, at five hundred R. P. M. and gives a speed of eight miles per hour. For a wide heavy boat of this kind that is very satisfactory.

The cost of the reconstruction, doing all the work myself, not including the first cost of the boat or the engine, was about five hundred dollars.

A. G. W., New York, N. Y.

More Cabin Space Available

ENLARGING the cabin of a thirty-foot sloop so as to convert it into a power cruiser could be done much more satisfactorily if more information concerning the design and arrangment of this particular boat was available. However, assuming a modern well designed sloop of normal proportions, the cabin will be comparatively small because in a sailing vessel large deck spaces along the sides of cabin trunk and forward are required for handling the sails and gear. The freeboard will also be quite low in order to increase stability and this in turn reduced head room.

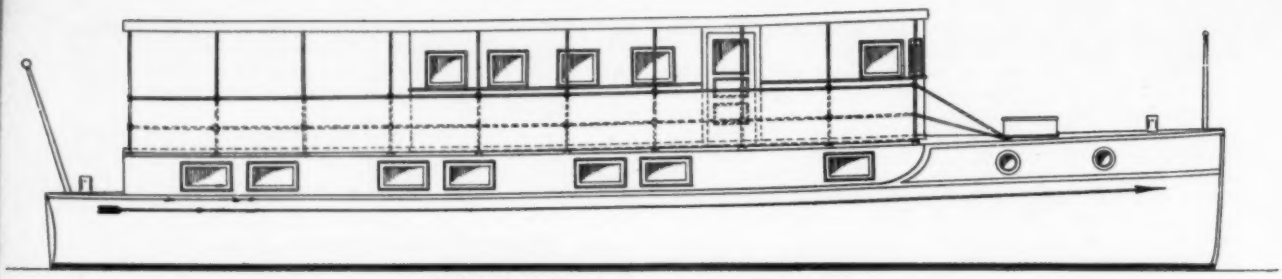


Profile and Arrangement drawings followed by A. G. W. in converting a sloop to a motor cruiser

Converting this sloop into a strictly power cruiser would make it possible and desirable to increase both the length and width of cabin trunk as well as the height, possibly obtaining full head room. This practically requires the building of a new cabin of the same type but of larger dimensions; the deck being cut out farther forward and probably only about half as much deck allowed along each side. This plan would make a good ship-shape looking job and be perfectly satisfactory, but would necessitate throwing away the old cabin entirely as there is little of it, if any, that could be used in the new and larger house.

Another plan, and one that would not require the destruction or wasting of the present cabin, is to increase the

(*Continued on page* 106)



Outboard profile of the motor houseboat Que-Pee

My Ideal Motor Houseboat

No. 3, Que-Pee—A 60-Foot Motor Cruiser

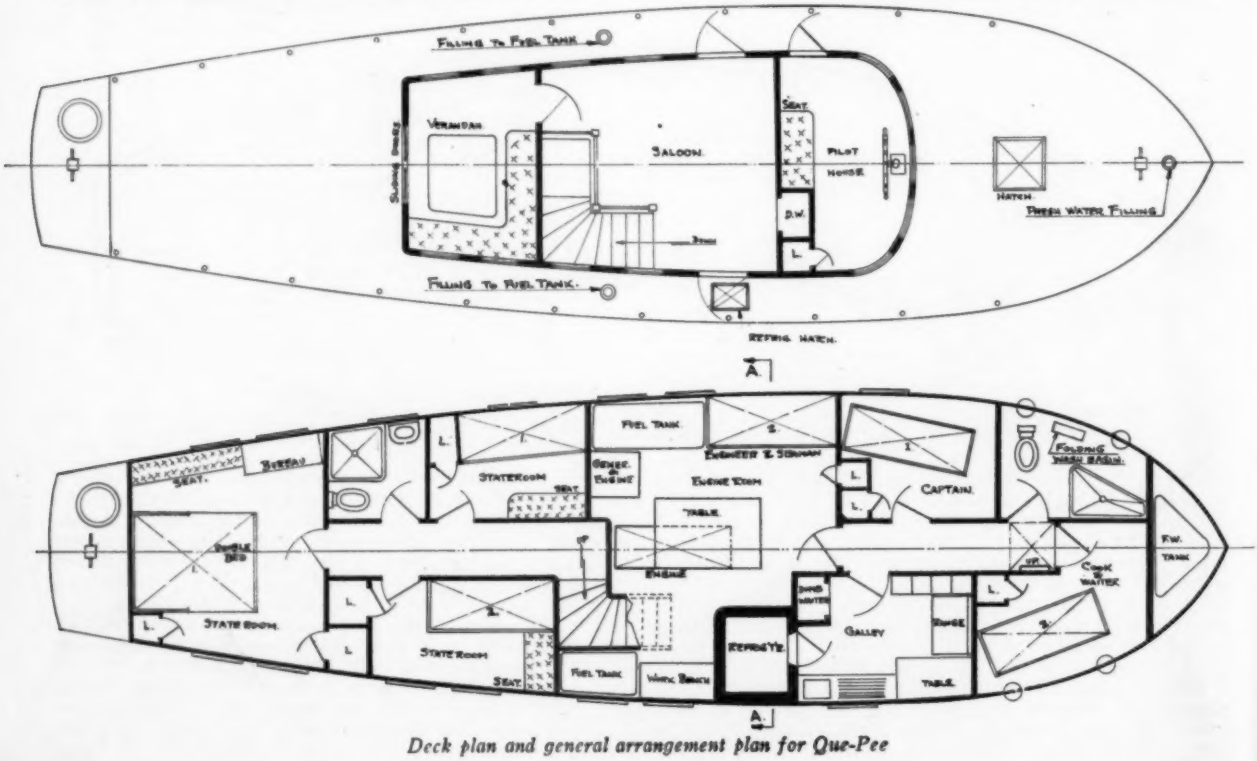
By E. C. Stock

AS I was a close student of the former Ideal series, I have come to the conclusion that two persons are widely separated who would agree on calling one certain boat an ideal craft. Moreover, their individual tastes in regard to the details would vary a great deal, so I expect my Que-Pee will receive but passing attention from those who study the new Ideal series.

My Ideal houseboat was in its infancy when the call of MoToR BoatinG made it spring into being, if only on paper. That call also crystallized the requirements that must ultimately find their way into it. Just let me mention a few of the requisites. As my family is composed of five members, accommodations must naturally be provided for them. The family must also be segregated from the crew. This is accomplished by providing family quarters in the after half of the vessel, the after engine-room bulkhead being the dividing line. For the crew, a boat of this type would require a captain, seaman, engineer, cook, and waiter. Besides carrying crew and passengers, the boat must have a sea speed of 12 knots per hour and this is obtained by a Frisbie engine which must have self-starter, reverse gear, improved ignition and other latest improvements. A cruising radius of one thousand miles was also specified.

Let us proceed through the ship and inspect her more carefully. In the bow, we have a fresh water tank of 246 gallons capacity. The water will be piped direct to the galley and bath rooms, run by gravity. Around the tank is storage space for the anchor cable. This compartment is divided from the remainder of the boat by a water-tight bulkhead. On the starboard side going aft, we find the cook and waiters' stateroom. On the port side is the crew's toilet and bath, which is well fitted up, having toilet, wash basin and shower. The Captain's stateroom is on the port side next going aft, and on the starboard side is the galley. Here is the first innovation of Que-Pee. It is nothing more or less than a dumb-waiter and it connects directly with the saloon above. We will go above later on, so let us proceed on our tour through the galley. Here we find a range, a large table, dish rack and dresser, drainboard and sink, and also a man-sized refrigerator. This refrigerator is iced through a small flush hatch on the main deck. We know cold air travels downward, and a glance at the detail of the refrigerator showing the ice above the food in a deep tray, will help to support my design. A drain from the ice tray is led overboard, so that deep pans are not necessary.

The next room is that one containing the engine. Here



Deck plan and general arrangement plan for Que-Pee

TABLE OF OFFSETS.

Station	Half Breadths. U. Sheer	L. Sheer	F. WL	E. WL	D. WL	L. WL	C. WL	B. WL	A. WL	Heights Above Base. Keel	Rabbet	L. Sheer	U. Sheer
0	0-11-4	0-3-4	0-1-7	0-1-1	0-1-0	—	—	—	—	3-6-0	4-1-0	8-7-2	10-7-2
½	4-0-0	2-7-3	1-11-3	1-11-0	1-9-0	1-6-6	1-2-2	0-5-4	—	1-0-4	1-3-0	8-6-0	10-6-0
1	5-7-6	4-4-0	3-7-5	3-5-3	3-3-0	3-0-0	2-6-1	1-8-6	0-3-0	0-3-6	0-6-0	8-4-4	10-4-4
2	7-4-2	6-6-0	6-0-4	5-10-6	5-8-4	5-5-1	4-9-4	3-8-0	1-5-0		0-2-0	8-2-0	10-2-0
3	7-10-6	7-6-3	7-4-1	7-3-2	7-1-7	7-0-0	6-4-0	4-11-0	1-8-4		0-2-0	8-0-0	10-0-0
4	8-0-0	7-11-0	7-10-5	7-10-2	7-10-0	7-8-6	7-1-3	5-6-3	1-11-0		0-2-0	7-10-1	9-10-1
5	8-0-0	8-0-0	7-11-7	7-11-6	7-11-6	7-10-6	7-4-2	5-9-3	2-0-0	STRAIGHT	0-2-0	7-8-4	9-8-4
6	7-9-0	7-9-0	7-9-0	7-9-0	7-9-0	7-9-0	7-2-7	5-6-5	1-10-4		0-3-0	7-7-3	9-7-3
7	7-5-1	7-5-1	7-5-1	7-5-1	7-5-1	7-5-1	6-9-2	4-8-2	0-3-3		0-6-0	7-6-1	9-6-1
8	6-11-4	6-11-4	6-11-4	6-11-4	6-11-3	6-9-1	5-9-0	3-7-4	—		0-10-2	7-5-4	9-5-4
9	6-4-4	6-4-4	6-4-4	6-4-4	6-3-2	5-9-2	4-3-6	0-10-3	—		1-4-3	7-5-4	9-5-4
10	5-8-0	5-8-0	5-7-7	5-7-5	5-4-0	4-6-3	2-6-0	—	—		1-11-2	7-5-4	9-5-4
11	4-10-6	4-10-6	4-10-4	4-8-7	4-3-0	3-1-4	—	—	—		2-6-7	7-5-6	9-5-6
12	4-0-0	4-0-0	3-11-2	3-8-4	3-0-4	1-7-0	—	—	—	—	3-3-0	7-6-2	—

DIAGONAL.

Station	½	1	2	3	4	5	6	7	8	9	10	11	12
	1-4-4	2-5-4	4-0-0	4-9-0	5-1-0	5-1-0	4-11-1	4-6-5	3-11-6	3-2-6	2-5-0	1-6-1	0-7-0

LENGTH B.P. - 60 FT.
" O.A. - 60 FT-9"
BEAM - MOULDED - 16 FT.
DRAFT - 3 FT-6"
SINGLE SCREW.

STATIONS - 5 FT. APART.
#1 BUTTOCK - 2 FT. FROM ℄
#2 " - 4 " " "
KEEL SIDED 6" - RABBET 3" FROM ℄ OF BOAT.

DIMENSIONS IN FEET, INCHES & EIGHTS TO OUTSIDE OF PLANKING.

MOTOR - HOUSE BOAT.
"QUE-PEE."

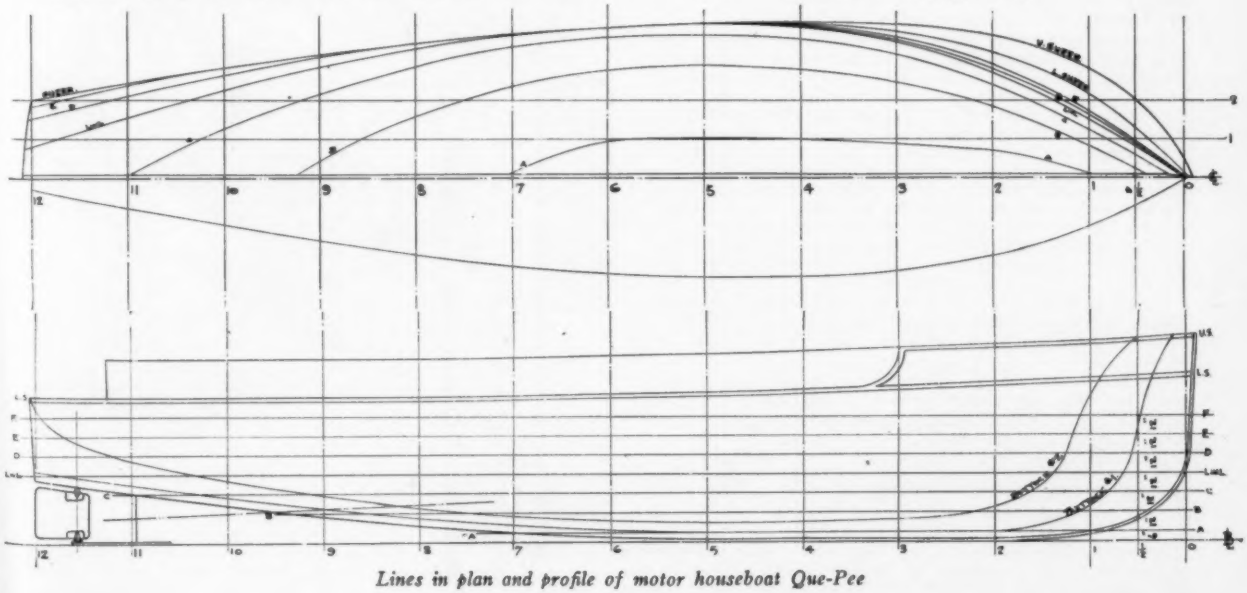
Complete table of offsets for building Que-Pee

we find a large display of the necessities of the ship. First in importance is the engine. It is a 50-75 h.p. Frisbie, 6 cylinders, 6 inch bore by 6 inch stroke and 550-800 r.p.m. It is located in such a manner that it is accessible from every angle. The engine is covered by a box and a table which is used for the crew's mess. The fuel tanks are located in the after end and have a combined capacity of 750 gallons which will give a cruising radius of 1,000 miles at full speed of the engine. A Delco generator, engine and batteries are also located in this compartment. This generator will make possible a very pretty scheme of illumination and interior decoration in the staterooms and saloon, and will appeal in that wise to the feminine portion of the party. A double built-in berth and lockers are provided in this room for the engineer and seaman.

Let us now go on deck. We climb up the ladder onto the forward deck and walk aft into the pilot house. Here we have a binnacle and compass, steering wheel and standard, seat and locker for charts and oil skins. Next aft we see the saloon which is the social center of the boat. The saloon was designed to take care of a medium sized party especially in the evenings when the deck would be too cool and too damp. In clear weather, the veranda would become the favorite lounging place and would be a very pretty spot to have dinner. The dumb-waiter comes into its own in just this case and it effectively keeps the galley and its heat from the dining saloon. The deck aft of the veranda will be given over to wicker chairs and tables and will make a real comfortable and cool observation station.

Now let us go below into the living quarters. Here we have three staterooms, one with double berths, one with

(*Continued on page* 102)



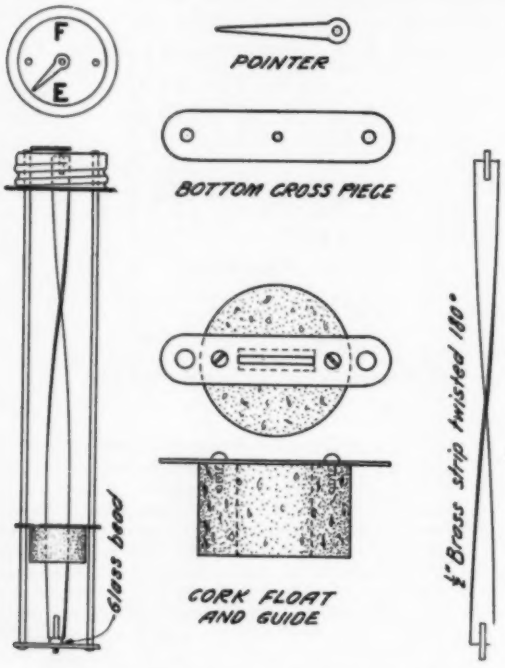
Lines in plan and profile of motor houseboat Que-Pee

The Way We Would Do It

Conducted by F. W. Horenburger and A. E. Snyder

EVERY month MoToR BoatinG's staff of experts answers thousands of inquiries about boats, engines, accessories and, in fact, everything marine. There is hardly a branch of the sport or industry on which they are not constantly being asked to give their opinions. They are very glad to do this, as well as to be of whatever service they can to MoToR BoatinG's subscribers and readers.

Quite naturally, many requests for information are received on subjects which are not of universal interest to every motor boatman. This, as well as the fact that it would be a physical impossibility to print answers to all questions received, makes it necessary for us to follow the rule of only printing answers to the few most important and interesting questions. However, we always give a reply by mail, so if you are perplexed about any questions pertaining to boating don't hesitate to write to "The Way We Would Do It" Editor.



Simple form of gauge to indicate amount of fuel or water in a tank

Can you suggest a form of gauge to indicate the amount of fluid, either gasoline or water, a tank contains which is visible at all times?—W. H., Boston, Mass.

The simplest form of gauge for indicating the level of fluids in a tank is something similar to the design suggested in the sketch above. The construction is very simple, consisting of a cork float to which is attached a brass strip slotted for the guides and also for the twisted propeller strip. The whole is secured to the filler cap of the tank and assembled about as shown in the drawings. The action is: when the tank is empty the float is at the bottom of the guides. The indicating pointer is at the empty position on the outside of the cap, and as the float rises the propeller strip is rotated, causing the pointer to move around to the full position. The friction should be reduced to a minimum and a glass bead is fitted as a bottom bearing to assist in overcoming this.

* * *

I wish to use a rope fender on my small dinghy, and would like to have you inform me as to the best way of securing this to the boat without expensive alterations.—S. K., Annapolis, Md.

We have sketched for you the typical construction of the small boat such as generally used. The simplest method of securing the fender rope would be to apply a small quarter-round moulding to the sheer line of the boat just below the position the fender is to occupy. At intervals small holes are drilled through the planking and the fender, which should preferably be a piece of white cotton rope, is tied through one of the strands to the hull. Our sketch will make this clear.

* * *

In overhauling my motor not long ago I was unfortunate enough to break a number of hack-saw blades close to the end. As the blades had been used but very little, their cutting edges are still in excellent shape, and I would like to ask whether these can be used again.—R. D., Bath, Maine.

A simple way to put a new end on a hack-saw blade would be to stick the saw through a potato. The short end projecting through can then be heated in the flame of a blow torch until it becomes red hot. When this has been permitted to cool, it will be found that the temper has been drawn from the end of the saw, and it will be possible to drill a new hole in order to fasten the saw in the frame again. The potato protects the covered part of the saw from the action of the heat, and in this way preserves the temper of the main portion of the blade.

* * *

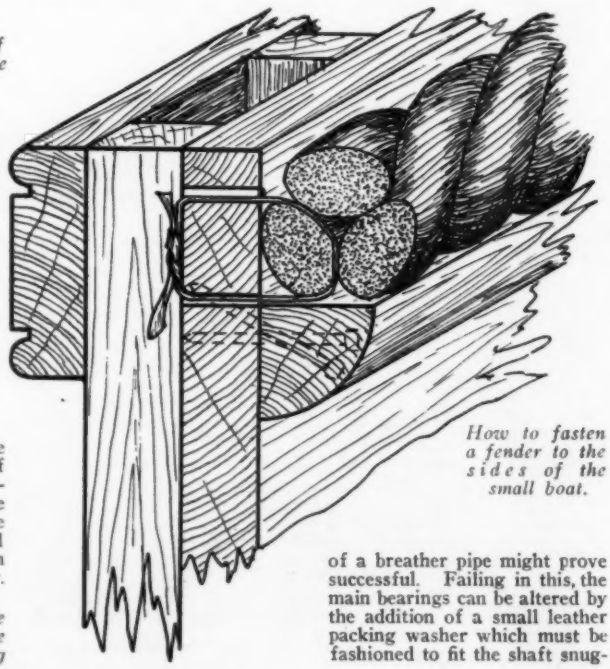
The outboard strut bearing, which is of the babbitt type, has a tendency to wear very fast. It is necessary to renew the babbitt at least every season, sometimes more often. Can you offer any remedy for this condition?—D. W., Chesapeake City, Delaware.

A very practical and satisfactory outboard bearing for use in struts can be made, using flax packing for the bearing surfaces. The hub of the strut is bored out about three-eighths inch larger than the shaft diameter. A packing nut is fitted on each end of the hub, and when the bearing is assembled flax packing is coiled around the shaft and set up tightly by means of these nuts. This bearing has the advantage of not requiring any lubrication, as the action of the water on the flax packing serves as a substitute.

* * *

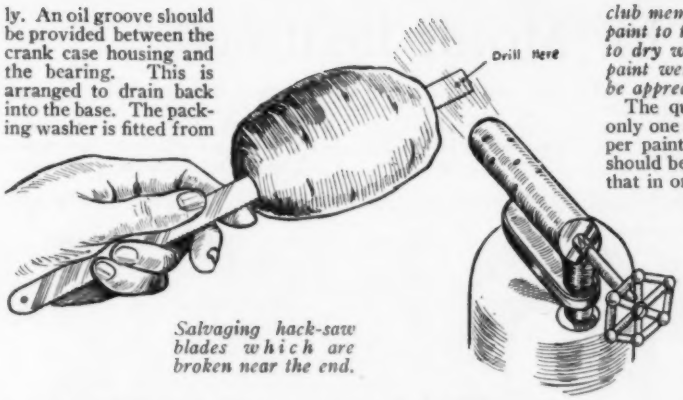
The engine room of my boat always is in a disgraceful condition due to the throwing of oil from the main bearings of my motor. I have tried to remedy this by fitting new bearings but the trouble continues. Is there any way in which this difficulty may be overcome?—W. W., Galveston, Texas.

Many motors which are otherwise perfectly satisfactory suffer from this failing of throwing oil through their main bearings. It is possible that this difficulty may be due to a slight pressure in the crank case, in which event the installation of a breather pipe might prove successful. Failing in this, the main bearings can be altered by the addition of a small leather packing washer which must be fashioned to fit the shaft snug-



How to fasten a fender to the sides of the small boat.

ly. An oil groove should be provided between the crank case housing and the bearing. This is arranged to drain back into the base. The packing washer is fitted from the shaft and attached to the crank case housing by means of small screws, as shown. We believe that the addition of this packing will remedy the difficulty of which you complain.



Salvaging hack-saw blades which are broken near the end.

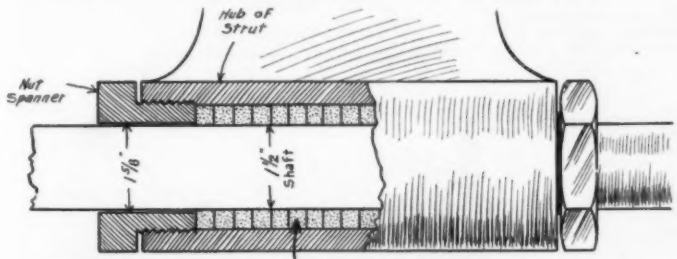
* * *

What would be the best way to keep the shaft log of my cruiser lubricated? The shaft fits snugly in the shaft hole, and has a tendency to get warm. It is not possible to enlarge the shaft hole on account of drift bolts which fasten the dead wood together.—R. B., Los Angeles, Cal.

The simplest method of lubricating this shaft log would be to install a large-sized grease cup so that grease can be forced into the shaft alley. There are advantages in lubricating this part of the boat, as the presence of heavy grease here has a tendency to prevent water from entering the boat via this route. Hot paraffin has been used for this purpose, but after it is cold the shaft will wear a hole in the paraffin in the same fashion as in a metal bearing. Heavy grease, however, will flow back slowly and completely surround the shaft at all times.

* * *

In planning to build a cruiser this winter I have been debating with my friends the merits of shallow-draft and deep-draft boats.



A method of packing the outboard strut bearing, which is adjustable.

Can you settle this matter for me as the question is still an open one and I am not convinced of the merits of each of these types? I propose to use this boat along the New England coast and wish to have a seaworthy craft.—E. S. S., Boston, Mass.

It is our opinion that for the purpose which you require your cruiser that the deep-draft boat is the more suitable. The shallow-draft boat has been designed and built particularly for use in localities where the depth of water is a limiting condition. This type of boat is slow in a seaway and will roll in a very unpleasant fashion. The sharp bend of frames at the bilges and the losses freeboard of the shallow-draft boat are structually weak points. Carrying the analogy further, to an extreme case, the hydroplane is a shallow-draft boat with well-known faults when it comes to seaworthiness.

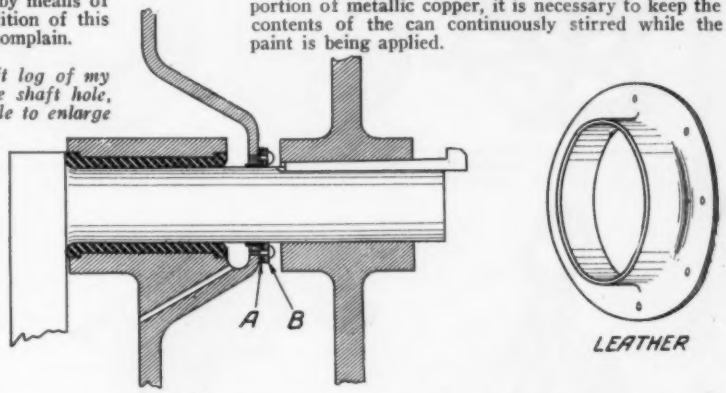
Our deep-draft vessel, on the other hand, is down in the water. Pitching on account of a sea does not lift the boat completely out and the motion is consequently not so violent. The motion is reduced by half and if the bows are flared the spray will be thrown well clear of the hull. The deep ballasted hull probably requires slightly more power and is also a trifle slower than the shallow boat. Its other advantages outweigh these slight differences very much. Fishing boats, pilot vessels, and all others which are compelled to keep the sea at all times are invariably deep-draft ships.

* * *

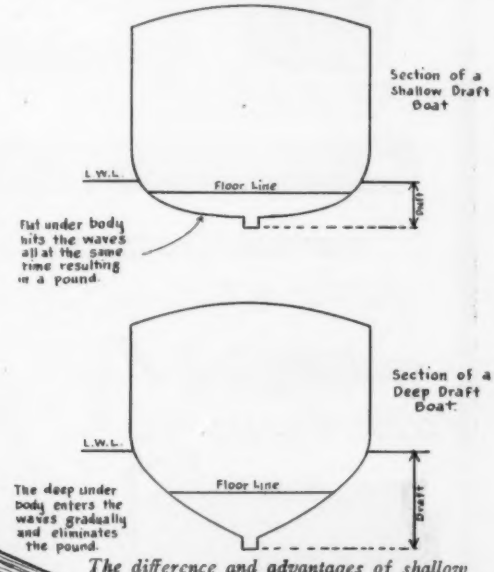
There has been much argument among my fellow club members as to the correct way to apply the copper protective paint to the bottom of a boat. Some say the paint should be left to dry while others claim the boat should be launched with the paint wet. Any light which you can shed on the problem will be appreciated—R. S. M., New York, N. Y.

The question you raise is a much-debated one, but there is only one answer to it. A prominent manufacturer of marine copper paints can be quoted as authority for the fact that a boat should be launched with the copper paint wet. In fact, it is stated that in order to have the paint as wet as possible the boat should be moved close to the water and then several men should be put to the task of getting the paint on the bottom with all possible speed. The boat should then be launched while the last brushful is being applied. In other words, the paint should be as fresh as it is practical to apply it.

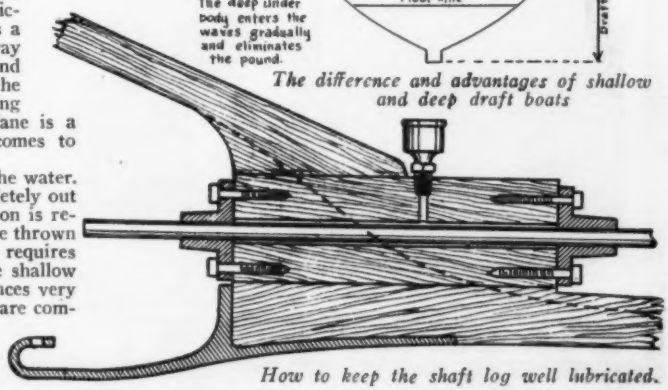
When applying copper paint to the bottom of a boat it is well to remember that the hull must be clean and dry. Two coats of paint should be applied and a soft brush is best. If any spots of old paint show through, it is well to apply a third coat over these areas. Since copper-bottom paints contain a large proportion of metallic copper, it is necessary to keep the contents of the can continuously stirred while the paint is being applied.



To keep oil from working out at the main motor bearings.


Section of a Shallow Draft Boat
L.W.L.
Floor Line
Draft
Flat under body hits the waves all at the same time resulting in a pound.
Section of a Deep Draft Boat
L.W.L.
Floor Line
Draft
The deep under body enters the waves gradually and eliminates the pound.

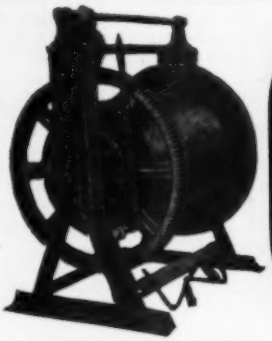
The difference and advantages of shallow and deep draft boats



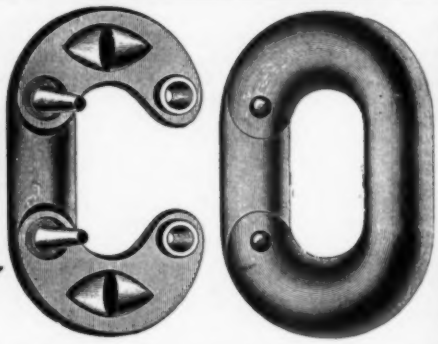
How to keep the shaft log well lubricated.

New Things for Motor Boatmen

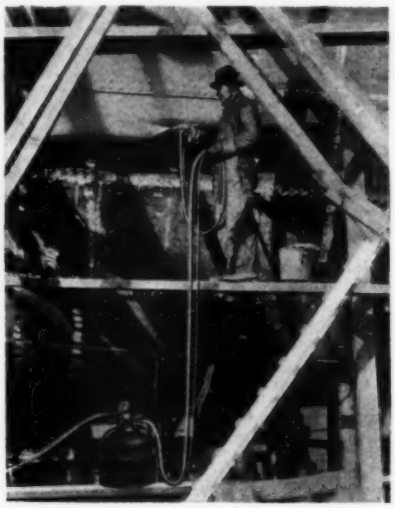
Each month new parts, attachments, and fittings, interesting and invaluable to owners of large and small motor boats, are added to the devices already on the market. Announcements of these articles come to us in such numbers that in order to introduce all of them to our readers we have been obliged to omit descriptions and publish only illustrations with short explanatory captions. In doing this, however, we urgently invite our readers to write us for complete information, as we shall take the greatest pleasure in providing it, together with the name and address of the manufacturers from whom the products may be obtained.



A hawser reel for storing wire or rope hawser conveniently on decks ready for instant use

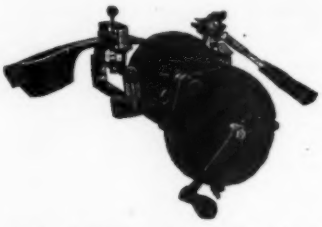


Chain repair links made in sizes from ⅜ inch to 1⅝ inches, stronger than the original chain



Portable pneumatic painting equipment which turns out better and faster work than the old hand methods

Strapped block with sister hooks for handling heavy loads



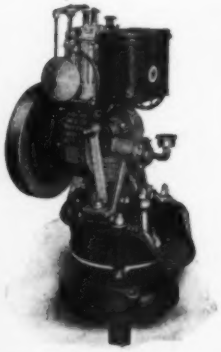
A hand grinder which is capable of sharpening all types of edge tools as well as drill points in all sizes

A cotter pin remover which grips the pin and will surely remove the most obstinate cotter pin

This turnbuckle provided with a spring which provides a limited amount of flexibility preventing sudden snaps and absorbing the expansion in metallic rigging

This grease gun is a heavy duty tool and will handle hard grease with ease

A heavy duty storage battery designed for starting and lighting service under the most severe conditions found on boats

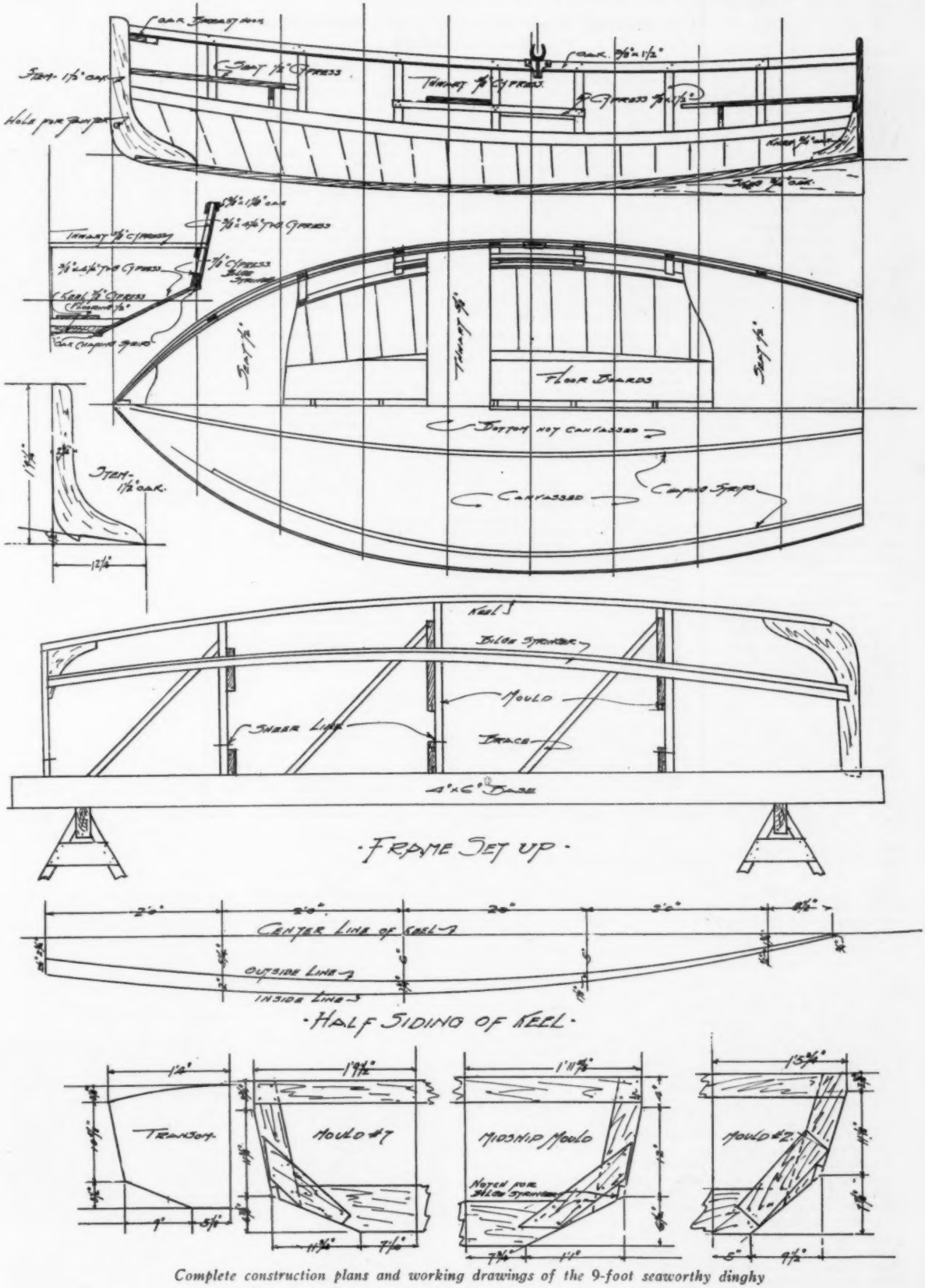


An air cooled gasoline engine driven diaphragm bilge pump, suitable for all heavy pumping requirements

The modern way of heating rivets is by means of an electric rivet heater. This one will heat three rivets at once

Do not fail to write to the editor if you desire information concerning any of the above new things

A Nine-Foot Easy-to-Build Dinghy



Complete construction plans and working drawings of the 9-foot seaworthy dinghy

The Winter Season of the Clubs Is In Full Swing

New York Athletic Club Gives Out A.P.B. A. and Annual Regatta Prizes

*By Thos. Farmer, Jr., B.S.**

WEDNESDAY, December 15th, was a big night at the New York Athletic Club. The yachting department of this organization has established the very enjoyable custom of entertaining as their guests the various prize-winners in the different races throughout the season. They further, instead of presenting only cups, give each winner the privilege of picking out what he wants in the way of a prize. In this way many very useful as well as ornamental prizes result. In the picture showing the prizes will be found everything from chronometers to traveling watches, marine glasses, silver table dishes and one man even went so far as to take a silver cocktail tray, just why no one knows. During the early part of the evening our old friend Chap, whose full title is Charles F. Chapman, with enough initials after his name to make the Russian alphabet look sick, refused to make a speech, notwithstanding the fact that he has challenged for the A. P. B. A. Cruiser Championship race for next season. We know right now he won't win but we are sure of a race at least. Jackson, whose first name is Victory, gave a very interesting talk explaining the essentials of race-winning, that is, the way he had doped it out. There were two essentials, a good boat, then a crew which consists of a motor-boating staff, and thirdly a good idea of what was wanted in the way of a prize. It appears to be a pretty good scheme and warrants a fair trial. Years ago, in gatherings of this sort, sailing men used to encourage the motor men and hope that they would finally arise to a position of wind-jammers. At the dinner the sailing men were asking for more attention to be given to the smaller sailing classes to educate young America, including Mr. Parker's boys and girls, to the art of sailing. Of course, we with motor boats know this is a hopeless task, but a very laudable one nevertheless.

It is hoped that 1921 will find even bigger entries and a more diversified list of winners than 1920.

The Athletic Club will run at least two long-distance races during the season and the entry list for Block Island and the new Travers Island-Shelter Island race should be very large.

* B. S.—Bass Soloist.

American Power Boat Association Adopts New Rules for R.P.M.

THE local Race Committee may determine which one of the following methods of determining "R" (revolutions per minute of the motor) is to be used and may specify same in circular of conditions.

***A*—When a boat is being measured, the owner shall furnish the measurer with a signed statement giving the r.p.m. of the engine. If it is found later that the actual revolutions per minute of the engine have exceeded this in a race, the owner may be disqualified as to that race by the local Race Committee. The local Race Committee shall use its discretion in this matter, as no rule can be devised capable of meeting all conditions.**

***B*—When a boat is being measured the measurer shall determine the revolutions by an actual trial under the conditions which, as nearly as possible, correspond to actual racing conditions. In the determining of the revolutions by this method, the owner or his representative must cooperate with the measurer in every possible way by putting boat at the measurer's disposal and complying with the measurer's instructions. It shall be the duty of the owner to see to it that the motor is run at its maximum speed during the trials. Should it be found later that the actual revolutions in a race exceed those in the measurer's trials, due to a condition under the control of the owner or crew at the time of the trials or in a race, the owner may be subject to disqualification as mentioned in Paragraph A above.**

***C*—When a boat is being measured, the owner shall furnish the measurer with a signed statement giving the r.p.m. of the engine. The local Race Committee shall then request each owner to name an observer to take the actual revolutions of the motor during the race. In case no observer is named by any owner, the local committee shall name one for that owner. The local committee shall place these observers on the boats during the race, determining by lot as to which boat each observer should be placed on, but so placing them that no observer is on the boat of the owner naming him. It shall be the duty of the observer to take actual revolutions of the motor during the race with an approved revolution counter at 15-minute intervals or at such intervals as the local Race Committee may specify, and report this to the local Race Committee immediately after the boat finishes. Should it be found that the maximum revolutions so reported exceed those specified by the owner in his signed statement, then the owner may be disqualified as mentioned in Paragraph A.**

***D*—The local Race Committee shall request each owner to name an observer to take the actual revolutions of the motor during the race. In case no observer is named by any owner, the local committee shall name one for that owner. The local committee shall locate these observers on the boats during the race, determining by lot as to which boat each observer shall be placed on, but so placing them that no observer is on the boat of the owner naming him. It shall be the duty of the observer to take actual revolutions of the motor during the race with an approved revolution counter at 15-minute intervals or at such intervals as the local Race Committee may specify and report same to the local Race Committee immediately after the boat finishes. The maximum revolutions so reported shall be used as the basis for calculating the horsepower of the motor mentioned in Section 5—Rule V. (Note) When Method D is employed it will be necessary to calculate the time allowances after the boats have finished.**

When no method determining the revolutions is specified by the local committee, the method mentioned in Paragraph A shall be used.

In any particular race, the same method of determining revolutions shall be used for all boats. Motors must be run at their maximum speed during the taking of revolutions.

When following method C or D, local Race Committee must use their judgment as to the selection of the proper maximum number of revolutions and give due attention to abnormal conditions of weather, sea, etc.

South Shore Power Boat Club Elects

The recent election at the South Shore Power Boat Club of Chicago resulted as follows:

Commodore, Wm. J. Blake; vice-commodore, W. A. Simpson; rear-commodore, Dr. F. C. Jacobsen; secretary, H. C. Ware; treasurer, Dr. L. H. Arnold. Directors, C. L. Brown, G. W. Schaeffer, Wm. C. Veyon.

To the untiring efforts of the retiring commodore, C. L. Brown, and secretary Geo. W. Schaeffer has been due in a large measure the success of the past seasons. The South Shore Power Boat Club now occupies a position second to no club on the Great Lakes.

Prosperous Year Ahead of Tamaquas

The annual election of the Tamaqua Yacht Club was held at the club house, Emmons Avenue, Sheepshead Bay, Brooklyn, N. Y., on Friday evening, December 10th.

The present commodore, John A. Filsner, emphatically declined to again accept nomination for re-election, which necessitated a readjustment of officers, resulting in the following election:

Commodore, W. H. Critchley; vice-commodore, R. Geiser; rear-commodore, William Irwin; treasurer, Geo. MacDonald; recording secretary, T. V. Gould; financial secretary, W. H. Hume; board of governors, for three years, R. A. Snyder, Ed. Neil.

The above officers were unanimously elected, receiving all but one of the entire votes cast, the one ballot not accounted for being a blank ballot which was cast.

The Tamaqua Yacht Club looks forward to a very successful and prosperous year, as the annual report of the treasurer was most satisfactory, showing the club to be in a very strong position financially, and with the new set of officers it is looking forward to a very successful social season.

The annual entertainment and ball will be held, as usual, this year at the Kismet Temple on Lincoln's Birthday night, February 12th, and as the committees have been very strenuous in their efforts, they are looking forward to a most successful evening.

Navigation Classes to Start

United States Power Squadron and the New York Athletic Club Yachtsmen extend an invitation to all interested in yachting to attend the sixth annual series of illustrated lectures on coastwise navigation and small-boat handling, to be held at the New York Athletic Club, 59th Street and Sixth Avenue, New York, City, every Monday evening at eight o'clock sharp, commencing February 7, 1921. No charges of any nature.

Text Book "Practical Motor Boat Handling"

By Comm. C. F. CHAPMAN

Date	*Subjects*	*Chapters*
Feb. 7	Rules of the Road and Whistle Signals	I, II
14	Lights for All Classes of Vessels—Equipment	III, VI
21	Buoys, Aids to Navigation, etc.	IV, V
28	The Compass and Its Use	VII
March 7	Compass Errors and Correction	VIII
14	The Chart and Its Use	IX
21	Nautical Instruments and Publications	X
28	Coastwise Navigation and Piloting	XI
April 4	Sailing in Fog, Flags and Yachting Etiquette	XII, XIII, XIV
11	Review	

Yard and Shop

Notes of Interest to Both Owner and Manufacturer

The Popular High Speed Motor

Hall-Scott motors have gained remarkable prominence. In most of the important regattas held from Coast to Coast Hall-Scott powered displacement boats outnumbered all competitors. This indicates the popularity attained by these smooth-running, high-powered, lightweight power plants. It has been shown that superfluous cast iron and excessive weight is unnecessary, provided that metals are selected, treated and machined with the high degree of accuracy which is maintained by the Hall-Scott plant. A record of reliability and consistency unequaled in the history of motor boating has been established by the Hall-Scott marine engines which are built expressly for those who are accustomed to, and appreciate, exclusive mechanical achievement.

Australian Exchange

All motor boat manufacturers note that the General Order No. 643 of the Australian Department of Trade and Customs provided, in connection with importations of goods from countries which have adopted the gold standard, that the rate of exchange was to be taken (regardless of the invoiced or bank rate of exchange) in accordance with the mintage par rate. Thus, for duty purposes, invoice values of goods shipped from U. S. A. today will be converted at the rate of $3.44, the current rate of exchange, instead of at the previous fixed rate of $4.86 to one pound sterling.

Universal Products Company Increase Their Capital

The Universal Products Company of Sandusky, Ohio, and Oshkosh, Wis., have increased their capitalization to $500,000.-00. Their plans include the purchase of the H. C. Doman Company of Oshkosh, Wis., and the removal of the main offices from Sandusky, Ohio, to Oshkosh, Wis. The new company will continue to manufacture the Universal Products electric lighting and power plants and the Doman marine engines. Owing to the large field organization developed during the last year, they will immediately go on an increased production schedule. The officers of the new company will be L. E. Wilson, president; R. K. Schriber, vice-president; Charles H. Eichinger, secretary; Louis Schriber, treasurer.

New Knox Circular

Knox Motors Associates have just issued a catalog which gives a brief description of their new marine motors. The new Knox model 940 20-h.p. marine engine is being sold for $840 f.o.b. This price includes the complete equipment, including magneto ignition with impulse starter, Paragon reverse gear, electric generator and starting motor, oil pump, water pump, bilge pump, ignition and starter switches, oil gauge and ammeter.

Thirty-six foot sedan runabout, a standard Lawley product, equipped with a model M. six-cylinder Van Blerck motor

Good Mechanics Now Available

It is a well known fact among all business men that proper service during the war, and for over a year after, was almost impossible on account of the utter impossibility to get raw material, as well as castings and forgings in small quantities. Conditions, however, have changed, and plenty of good mechanics can now be had. Quick deliveries can be obtained on almost any kind of material. The combination of these present conditions makes it possible to offer 100 per cent better service than that of the past few years. Bruns, Kimball & Co. have been quick to adapt themselves to the bettered circumstances by enlarging their stock of parts and increasing their force of service mechanics. They have also been most particular in the selection of mechanics, most of their men being factory trained in the shops of the more prominent engine builders. The service department is in charge of a competent man, and the combination of good mechanics, parts carried in stock and the whole department properly managed, will be welcomed by boatmen in the vicinity.

RACING DATES FOR 1921

Feb. 10, 11, 12	Fisher Trophy Races at Miami, Fla.
July 4	Mississippi Valley Annual Regatta.
July 9	New York to Block Island Cruiser Race.
July 16	New York to Newburgh and return.
July 30	New York to Shelter Island Cruiser Race.
Aug. 11, 12, 13	Fisher Trophy Races at Buffalo, N. Y.
Aug. 17, 18, 19	Thousand Islands Challenge Cup Races on the St. Lawrence River.
Aug. 20	A. P. B. A. Cruiser Championship of America.
Aug. 27, 29, 30	Gold Cup, One Mile Championship and Wood-Fisher Trophy Races at Detroit.
Sept. 3, 5, 6	Races for British International Trophy, provided challenge is received.
Sept. 5, 6, 7	Races at Toronto.

Group of salemen who attended a two weeks' convention of the Champion Spark Plug Company at Toledo, Ohio, last summer

New Yacht Club in Charleston

One of the most recent enterprises in Charleston was the organization on October 19, 1920, of the Charleston Yacht Club, with the following officers: Warren Stopplebein, commodore; Charles F. Seel, vice-commodore; L. H. Schlufter, fleet captain; Dr. J. Mercier Green, fleet surgeon; H. W. Eriksen, secretary and treasurer. The site of the Charleston Yacht Club was leased from the present city administration and is located on the Ashley River. They are going to have an L-shaped pier 100x75 feet and a board walk 700 feet long. The pier will be large enough to dock four yachts at once. The Charleston Yacht Club extends a cordial invitation to all visiting yachtsmen to make this club their headquarters while in their waters.

Economical Heavy Oil Engines

The Dodge Sales & Engineering Co., Mishawaka, Ind., have just published a new booklet which contains a description of the Dodge Heavy Oil Marine Engines and the Dodge Heavy Oil Electric Generating Units. Dodge heavy oil engines are guaranteed to be first-class in construction and workmanship and will deliver full rated horsepower at full speed, when properly operated. They are reliable, economical and dependable.

A New Booklet for Boatmen

An interesting little booklet called "Cypress the Wood Eternal," has been published by the Southern Cypress Mnfrs. Association, New Orleans, La. The book contains 29 pictures and 16 charts which

will prove of great value to the boatmen, especially those who are contemplating building a boat.

A New Boat Builder's Clamp

A new time and labor saving device has just been perfected for the use of boat builders in the shape of a planking and decking clamp. Made of malleable iron they can be instantly fastened to the timbers or deck frames. It is adjustable up to two inches. Small teeth are provided on the clamp which take a firm hold on the timbers without marring the material. This

The newest boat builders' clamp which is popular with the shopmen

clamp has been thoroughly tried out and is being used by many of the largest boat building establishments in the country. It is recommended as a most practical and serviceable device. Messrs. Woodward & Chamberlain, the manufacturers, are preparing to produce this clamp in large quantities and it will soon be obtainable from all marine supply dealers.

A New Single Cylinder Motor

Detroit has just seen the organization of a company to produce a single cylinder, four-cycle motor designed to use Ford parts and developing about four horsepower. H. C. Blodgett, the general manager of this corporation, has had many years experience in the motor industry and the demand for a small, sturdy, lightweight motor has been sufficient to warrant the formation of the Michigan Marine Motor Corporation of Detroit. A test motor has been in operation for a long time and it is hoped to be in production early in the new year.

A Correction

In the Special Motor Boat Show Number of MoToR BoatinG the description of the small generating set stated that it had been designed by the Smith Meeker Engineering Company. This statement was in error as the Home Lighting Generator Set was designed and developed by C. H. Ferguson and E. W. Kliesrath of the Simms Magneto Company of East Orange, N. J. A separate company has been formed for the manufacture of this little plant, called the Homelite Electric Company. The Smith Meeker Engineering Company are the Eastern Marine Distributors for this company.

American Motors Going Abroad

The agents of the Kermath Motor Company at Valetta, the chief city of the Island of Malta, have just notified the factory that they have secured a contract with the local government to equip the Coast Guard boats and Health Department service boats with Kermath motors. This is to be the standard 20-h.p. Kermath motor with which many of the United States Coast Guard life saving boats are also equipped. Where reliable power is required, Kermath engines are being used with increasing favor.

The Annual Report of the Commissioner of Navigation

The annual report of the Commissioner of Navigation, Department of Commerce, for the fiscal year ended June 30, 1920, states that the year is one of maximum records in most branches of American shipping and shipbuilding and is not likely to be equaled for years to come, and our progress can be measured only by world standards.

The total American registered, enrolled, and licensed tonnage on June 30, 1920, was 16,324,024 gross tons, three times the tonnage in 1914 of Germany, whose former place as the second maritime power the United States now firmly holds. The year's increase in American shipping has been 3,415,724 gross tons, an annual increase larger than the whole world's increase during any year before 1914.

The Motor Boatman's Winter Days

By W. A. Simpson

The melancholy days have come,
The saddest of the year;
I haul my motor boat ashore,
And shed a wistful tear.

I scrape the hull and scrub the deck,
And take the engine down;
And woefully I vote myself
The glummiest man in town.

I wonder sadly how I'll spend
The gloomy winter days;
And sordidly my thoughts revert
To Bruin and his ways.

Oh! for a quiet hollow tree
Upon a mountain steep,
Where cozily I could forget
The world in peaceful sleep,

And dream of joyous summer time,
And rippling waters fair;
For when the ice and snow abound,
I wish I were a bear.

Annual Report, Coast and Geodetic Survey

The annual report of the Director of the Coast and Geodetic Survey to the Secretary of Commerce for the fiscal year ended June 30, 1920, says in part: "There are three other branches of the Coast and

A handsome trophy presented by Comm. E. L. Kieger to the Hudson River Section of the Waterway League of America to stimulate the racing activities on the Hudson River

Geodetic Survey which, judged from their importance and value to the country, must be immediately recognized by providing just salaries, if they are to be retained, otherwise the necessarily high standard of the Survey must permanently suffer. These three classes of men are the computers (mathematicians), draftsmen (cartographers), and instrument makers.

Shall the service lose this class of technical men and continue to accept anyone available? The field force is now on a substantial basis and will be handled with economy and thoroughness, and there is needed the same atmosphere of efficiency among the technical force in this office; otherwise the results will be complicated and delayed. The remedy is clear and economical, besides giving correct and prompt results to the country."

(*Continued on page* 55)

A busy part of the Universal Motor Co.'s plant, where the motors are assembled, with shipping department on the right

Valspar—tested by fire and water!

On the night of September 13th, 1919, the sky line of Brooklyn, N. Y., was thrown into bold relief by the glare from the great five-million-dollar Standard Oil fire.

For five days and nights the fire boats fought the flames at close quarters—continually drenched with water, jammed up against the scorching heat. And when the siren signalled "Out" not a single blister or white spot was visible on their varnished surfaces.

They were Valsparred, of course!

Valspar protects the fleet that protects the harbor. For twelve years it has been the standard varnish of the New York Fire Department — Marine Division. Every day these boats are scrubbed down with soap and water. Soap and hot water; snow, spray, sun; oil, grease —Valspar stands them all, never losing its brilliancy or turning white.

Launches to liners—if a boat is worth varnishing, it's worth Valsparring.

VALENTINE & COMPANY

Largest Manufacturers of High-Grade Varnishes in the World—Established 1832

New York Chicago Boston Toronto London Paris Amsterdam

W. P. FULLER & Co., Pacific Coast

VALENTINE'S VALSPAR

The Varnish That Won't Turn White

VALENTINE & COMPANY, 456 Fourth Ave., New York

Special Offer

For your dealer's name and 15c in stamps, we will send you a 30c sample can of Valspar—enough to finish several square feet of surface. Fill out coupon.

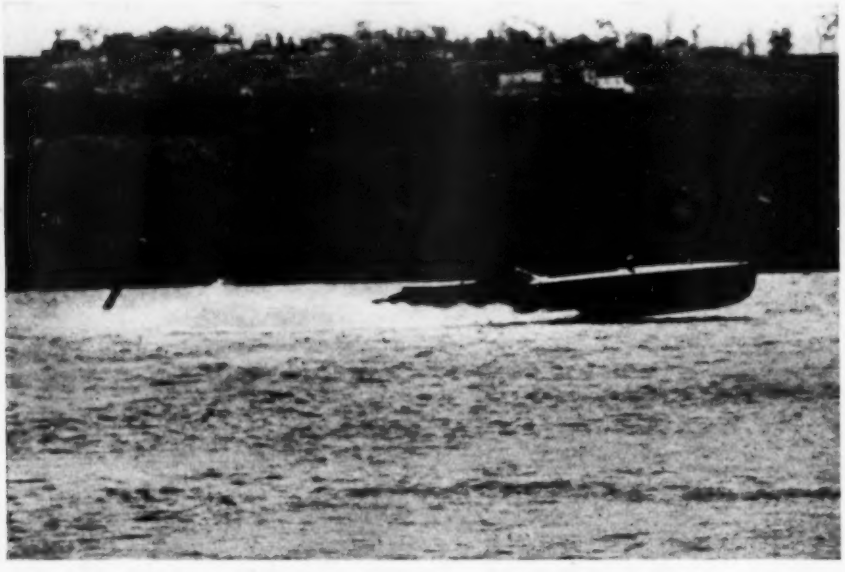
Dealer's Name .....

Your Name .....

Your Address .....

M.B.—1-21

Albany Boat Scores World's Record—



New type develops greater speed, seaworthiness and comfort advantages

AT ITS INITIAL TRIAL—the first Gardner model, a runabout 33' 8" x 7' with GR6 Sterling motor, scored a world speed record for boats of this size and class.

OFFICIAL CERTIFICATE
AMERICAN POWER-BOAT ASSOCIATION

Office of the
Secretary of the Racing
Commission
119 West 40th St.

New York, N. Y., Dec. 7th, 1920.

We have this date tested Design No. 605, Manufacturer's No. B-97, designed by Elliott Gardner and built by the Albany Boat Corporation, over an official American Power-Boat Association one statute mile course, and hereby certify that the following records are correct:

Speed against current, 36.51 miles per hour.
Speed with current, 42.76 miles per hour.
Average speed, 39.635 miles per hour.

The conditions under which the trials were conducted were as follows:

Weather: Cloudy.
Wind Force: About 30 miles per hour.
Wind direction: Across course.
Temperature: Freezing.
General conditions: Unfavorable.
Number of persons on boat during trials: 3.
Name of helmsman: Harry W. Fero.
Name of Engine man: A. J. Claus.
Power Plant: 6 cylinder, type GR Sterling.

Secretary, Racing Commission.

(Signed) C. F. Chapman,
Timer (Signed) Henry Sampson, Jr.

AMONG the many innovations and refinements in fast runabouts and express cruisers introduced by the Albany Boat Corporation, perhaps none is more remarkable than its new Gardner hull (Patent Applied for.)

This type, the first model of which, conforming to the Fisher Trophy regulations, was displayed at the December Motor Boat Show, is revolutionary in its possibilities. It creates an extremely handsome boat in action. The stern rises evenly with the bow as speed increases, and gives driver unrestricted view both fore and aft. This characteristic permits greater freeboard forward and adds immensely to the dryness and seaworthiness of the boat in rough weather.

On a quick slow down, or at any stage of slowing from 40 to 1 m.p.h. the boat settles softly and easily without plowing. At every speed it drives and rides as sweetly as the finest car.

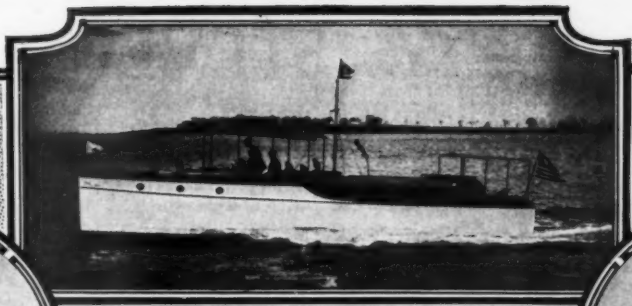
In appearance this type is like the refined Albany V bottoms, the primary difference being a V shaped channel cut from the bottom leading aft. The exhaust, piped to this channel, is practically noiseless.

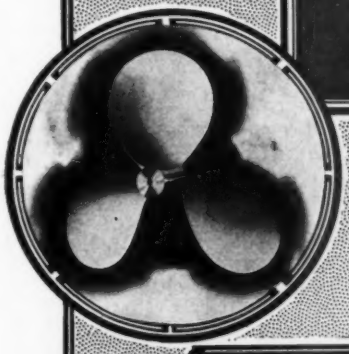
This new principle is applicable to Runabouts, high speed cruisers, and hydroplanes. Greater speed and greater efficiency is absolutely guaranteed over any other type of displacement boat of identical size and power.

Plans, specifications and full details of fine runabouts, express cruisers, or racing boats of the Gardner type (Patent applied for) will be furnished responsible parties on request.

Albany Boat Corporation
Seventh Street **Watervliet, N. Y.**

Advertising Index will be found on page 118





Columbian Bronze Propellers

For Big Boats—For Small Boats For All Boats

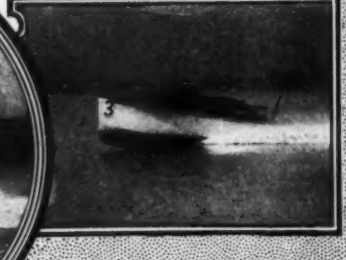
THERE is a Columbian Bronze Propeller designed and built to make YOUR boat go faster, to give you more miles for the power developed by your engine.

Columbian Engineers are ready and willing to place at your disposal their knowledge of propellers and of boats. They will give you definite advice regarding the right type and size of propeller to use.

DON'T wait until the Spring rush before getting this very necessary and valuable co-operation. Do it now, so that your order may be placed early and prompt shipment obtained.

On the efficiency of your propeller depends the real success of your boat. Write today for the Columbian Catalog—"Propellers in a Nutshell" and give us details regarding your boat.

COLUMBIAN BRONZE CORPORATION
522 Fifth Avenue **New York City**
For New York Local Sales Only: 44 Third Avenue



Cable Address:
BROKERAGE, NEW YORK

COX & STEVENS

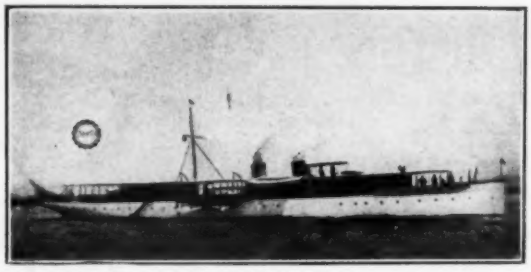
Telephones:
BROAD 1924
BROAD 1375

NAVAL ARCHITECTS—MARINE INSURANCE—YACHT BROKERS

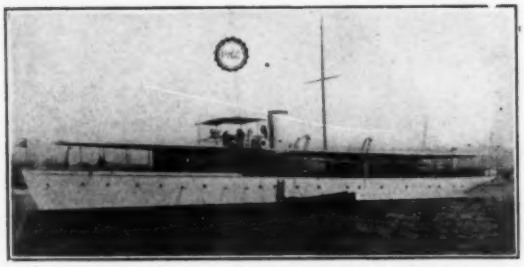
15 WILLIAM STREET, NEW YORK

Complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.

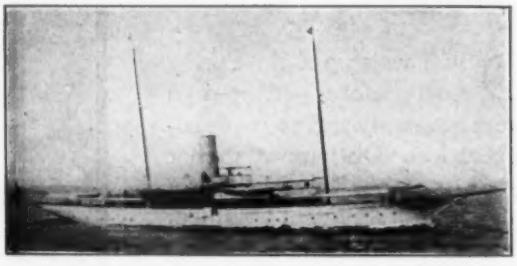
Direct representative now in Florida prepared to serve prospective purchasers or charterers.



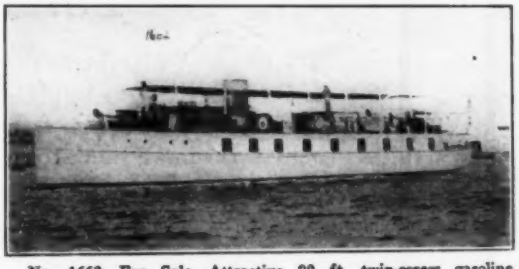
No. 3047—For Sale—Particularly attractive 165 ft. fast oil-burning twin-screw, steel steam yacht. Speed up to 19 miles. Beautifully finished and furnished. Large accommodation includes dining saloon and music room on deck, six staterooms and three bathrooms below aft. Cox & Stevens, 15 William Street, New York.



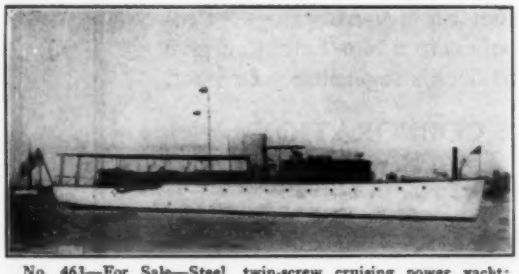
No. 1466—For Sale or Charter—Particularly desirable 140 ft. twin-screw steel cruising power yacht. Speed up to 18 miles; two 300 H.P. Standard motors. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense. In splendid condition. Cox & Stevens, 15 William Street, New York.



No. 7—For Sale—200 ft. seagoing steel steam yacht. Lloyds highest rating. Cox & Stevens, 15 William Street, New York.



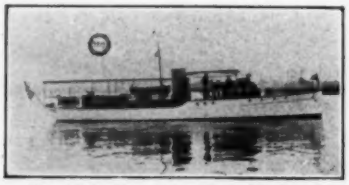
No. 1662—For Sale—Attractive 90 ft. twin-screw gasoline houseboat. Speed 10-12 miles. Large saloon, four staterooms, two bathrooms. All conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



No. 463—For Sale—Steel, twin-screw cruising power yacht; 110 x 17.6 x 6 ft. Speed up to 14 miles; two 100/125 H.P. air-starting, reversible Standard motors. Accommodations include deck dining saloon, main saloon, two double and two single staterooms, bathroom, two toilets. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.

No. 3489—For Sale—Exceptionally high-grade twin-screw cruising power yacht; 90 x 16.3 x 5.2 ft. draught. Built 1917. Speed up to 16 miles; two 115 H.P. Winton motors. Large dining room in deckhouse forward; two double and one single staterooms; bath room and 2 toilets, roomy pantry, galley, etc. Large deck space. Price attractive. Cox & Stevens, 15 William Street, New York.

No. 3151—For Sale or Charter—Particularly desirable twin-screw houseboat; 77 x 17.6 x 3 ft. Speed 11 miles; two 6 cyl. 60-70 H.P. Standard motors new 1919. Large deckhouse containing social hall; main saloon, two double and two single staterooms, two bath and toilet rooms, etc. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.



No. 3533—For Sale—Fast 72 ft. twin-screw cruising power yacht. Speed up to 17 miles; two 6 cyl. 125-150 H.P. Winton motors. Dining saloon, two double staterooms, bath and two toilets, galley, etc. Cox & Stevens, 15 William Street, New York.

No. 3255—For Sale—Roomy bridge deck cruiser; 60 x 13.6 x 3.6 ft. Built 1916. Speed up to 11 miles. 40/50 H.P. "20th Century" motor. Completely overhauled 1920. Large saloon, two double staterooms, toilet room, etc. Excellent condition. Cox & Stevens, 15 William Street, New York.

Advertising Index will be found on page 118

NAVAL ARCHITECTS
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YACHT BROKERS
MARINE INSURANCE

HENRY J. GIELOW, Inc.

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Cable Address:
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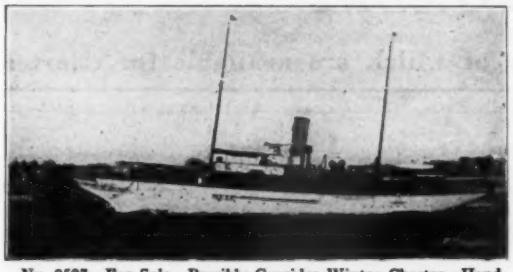
A.B.C. Code

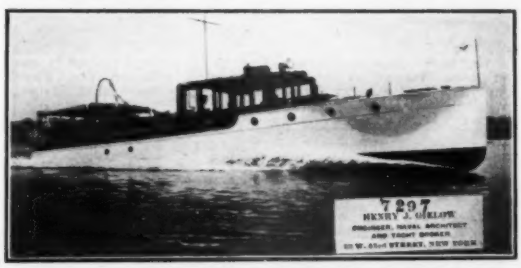
Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

We have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in my office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. We are in a position to submit full information on any type of boat upon request.

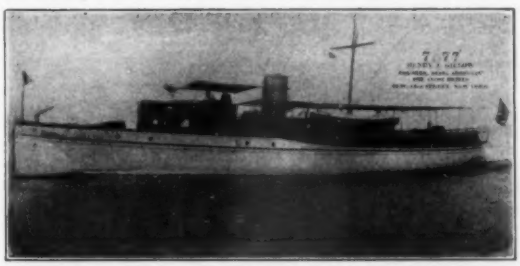


No. 9597—For Sale—Possibly Consider Winter Charter—Handsome 162 ft. seagoing steam yacht, second to none of her size. Finest condition and perfectly appointed. Cruising speed 12 knots. Steel construction, thoroughly overhauled and refitted throughout, 1919. Mahogany and teak trim. Deck dining saloon and music room. Large bridge deck. Two double and four single staterooms, 2 baths. Ice plant, steam heat. Large water supply and liberal cruising radius. Price reasonable for yacht of size and type. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

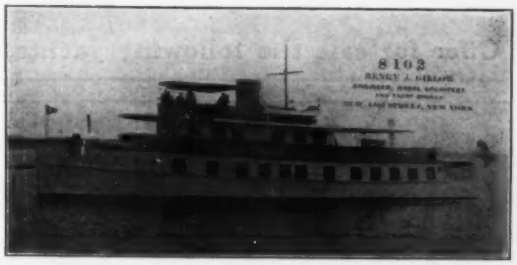
No. 8080—For Sale—Charter—New modern 85 ft. twin-screw cruising houseboat. Deck dining saloon and galley. 2 double, 3 single staterooms. Hot water heat. 3 baths. Shoal draught makes attractive type Florida cruising. Two 50 horsepower motors give speed 10 miles. Good sea boat. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7297—For Sale—Attractive high grade 48 ft. twin-screw express cruiser. New Van Blerck motors and upholstery 1920. Speed 21-24 miles. Excellent sea boat though shoal draught, and desirable for Southern and Northern use. Two cabins and separate galley. Crew forward. Bridge deck enclosed in removable glass partition. Cockpit aft. Modern in all appointments. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

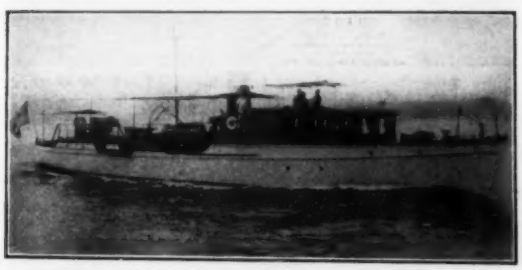


No. 7077—For Sale—Particularly desirable 80-foot twin-screw power yacht. "20th Century" 50/60 H.P. motors, new 1919. Deck dining room, two double staterooms, bathroom. All furnishings and equipment new 1919. Excellent condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

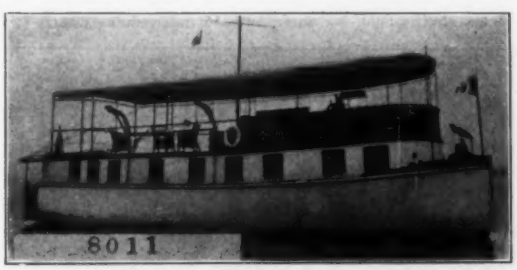


No. 8102—Sale—Charter—New 98 ft. cruising houseboat located Southern waters. Modern in design and appointments. 100 horsepower motor gives speed 10 miles. Hot water heat. Deck dining saloon and living room, also owner's state room. Below are 2 double and 4 single staterooms. Most desirable type of Florida cruiser. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

No. 7002—For Sale or Charter—Finest yacht of type available. 138 ft. twin-screw power yacht. Two 300 H.P. Standard engines. Dining room and social hall on deck; three double and one single staterooms; two bathrooms. All furnishings new 1920. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7040—For Sale—Bargain—Modern Lawley built 96 ft. twin-screw motor yacht, 15 ft. beam; Standard motors, speed 11 miles. Deck dining saloon, 2 double staterooms, accommodate seven. Economical, can run with 4 crew. Able sea boat. Furnishings new 1919, includes player piano. Large bridge and good deck space. Fine condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 8011—For Southern Charter—Most commodious 51-foot cruising houseboat available. Standard motor. Large deck space. Two double and two single staterooms. All good condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

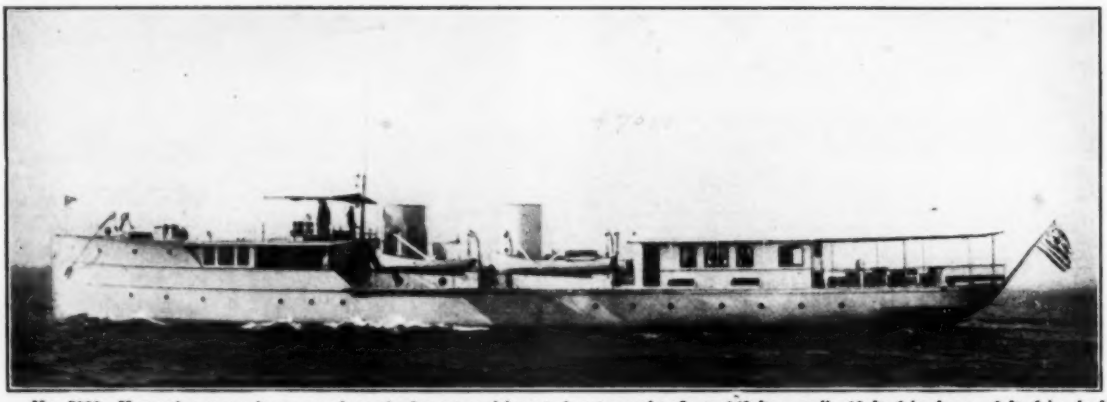
TAMS, LEMOINE & CRANE

NAVAL ARCHITECTS AND YACHT BROKERS

Telephone 4510 John

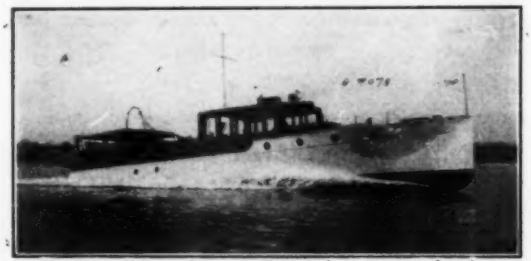
52 Pine Street New York City

Offer for sale the following yachts, some of which are available for charter



No. 7098—Unusual opportunity to purchase the largest cruising steel motor yacht afloat—140 ft. overall—19 ft. 6 in. beam—6 ft. 6 in. draft. Designed by Tams, Lemoine & Crane and built by Lawley. An exceptionally able yacht. Triple screw having three 6 cylinder Speedway motors. Gasoline consumption low. Speed 16 miles per hour. Large cruising radius. Has very commodious owners' quarters attractively fitted and furnished. In absolutely A-1 shape throughout.

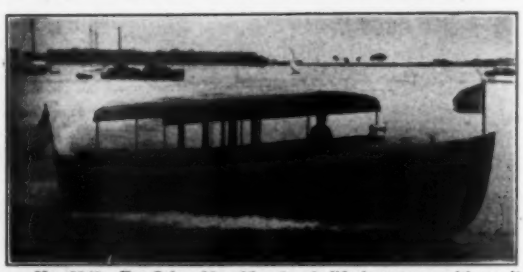
No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors; speed 21½ miles; all modern conveniences.



No. 9078—Sale or Charter—Fast 48 ft. express cruiser in commission. Immediate delivery—2 new 6 cylinder Van Blerck motors. Good accommodations. Thoroughly overhauled this year in all departments.

No. 8102—Sale—Charter; most desirable raised deck cruiser available; practically new, 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles, electric light, hot water, heat and refrigerating plant.

No. 1902—Sale or Charter—In Florida. Most commodious houseboat of her length available; 64 ft. x 17 ft. 6 in. x 3 ft. 2 in. draft.



No. 8949—For Sale—38 x 35 x 8 x 3, life boat type, with small cabin forward. Large cockpit. Powered with 6 cylinder Sterling. Inspectable near New York. Price reasonable.

No. 1927—Sale—Charter—Very desirable, twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.

Advertising Index will be found on page 118

EDWARD P. FARLEY CO.,

6 N. Michigan Avenue, Chicago, Ill.
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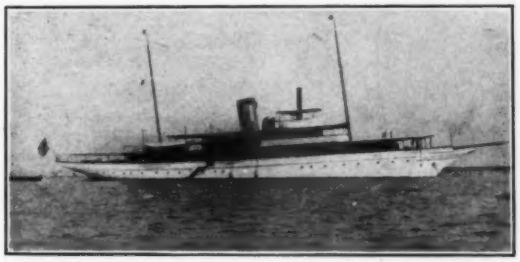
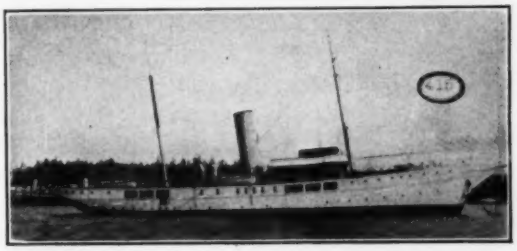
Naval Architects, Yacht Brokers, Surveying, Marine Insurance

We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter

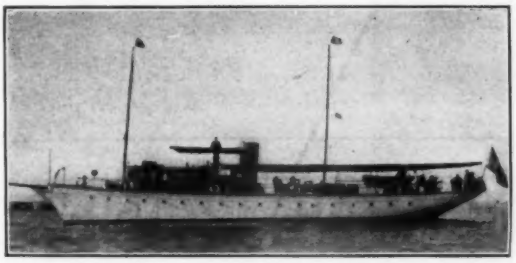
Plans, Photographs and full particulars furnished on request.



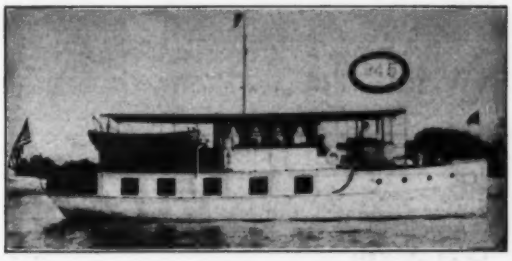
No. 111—For Sale—188 ft. steel steam yacht. Wonderfully well appointed. Excellent condition. Commodious accommodations. Modern in every particular.



No. 415—For Sale or Charter—Thoroughly modern twin-screw steel steam yacht. 210 ft. x 32 ft. x 13 ft. draft. Recently built in Scotland to Lloyd's highest class. Excellent seaboat. Equipped for extensive cruising. Cold storage, wireless, etc. Cruising speed 11 to 12 knots.

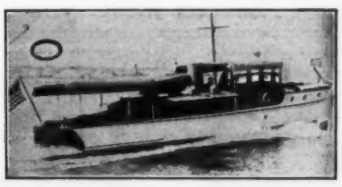


No. 36. For Sale—Twin screw power yacht. 98 ft. x 16 ft. 6 in. x 4 ft. draft. Five staterooms, two baths. Deck dining saloon. Winton motors. In excellent condition.



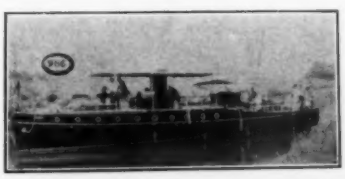
No. 945—For Sale—Mathis 52 ft. houseboat. Launched in December, 1919. Is practically a new boat. Furnishings, etc., are of the best.

No. 573—For Sale or Charter—91 ft. x 14 ft. x 4 ft. 3 in. Twin-screw gas yacht. Winton motors. Speed up to 17 miles. Roomy accommodations with every convenience. In excellent condition, fully equipped, modern.



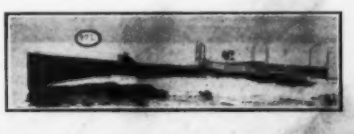
No. 880—For Sale—56 ft. x 11 ft. 6 in. x 3 ft. twin-screw express cruiser. Completed 1917. Van Blerck motors. Guaranteed speed 25 miles. Attractively arranged and furnished.

No. 83—For Sale—85 ft. twin-screw cruising yacht. 16 ft. 7 in. beam, 3 ft. 6 in. draft. Excellent for southern cruising. Three double, one single staterooms, bath, also dining saloon on deck. Cruising speed 14 miles. Is in excellent condition and fully equipped with every modern convenience.



No. 986—For Sale or Charter—1919 twin-screw cruiser. Houseboat type. 62 ft. x 15 ft. 4 in. x 2 ft. 6 in. Sterling motors. Speed 12 miles. Attractively arranged and furnished. Excellent for Southern or River use.

No. 451. For Sale—85 ft. x 15 ft. 6 in. x 4 ft. power yacht. Attractively furnished throughout. Equipped for extensive cruising. Two double and one single staterooms. Located Great Lakes. In very good condition.



No. 971—For Sale—35 ft. Speedway runabout. In excellent condition. 150 H.P. Speedway motor, electric starter. Speed 27 miles. Mahogany planking and finish. Batten seam construction. Fully equipped with top, windshield, etc. A rare bargain.

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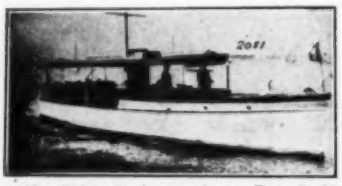
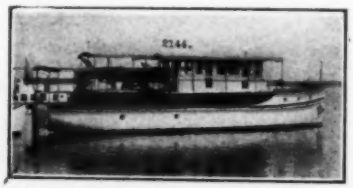


No. 2081—58 foot cruiser. Two double staterooms, main saloon with two Pullman berths, etc. Two toilets. Mahogany finish. 50-54 H.P. Standard motor. Speed up to 14 miles. Electric lights, etc.

No. 1490—40 foot houseboat cruiser. Double stateroom, main saloon, etc. 25-35 H.P. motor installed this year. Electric lights, etc. Located in Florida.



No. 2144—60-ft. yacht. Draft 2 ft. 8 in. Two double staterooms, main saloon, large deck saloon, bath, etc. 60 H.P. Sterling motor. Speed, 10-12 miles.

No. 4322—Sale or Charter—Twin-screw 85 foot power houseboat. Five staterooms, dining saloon, three baths, etc. Speed 10 miles.

No. 2031—40 foot cruiser, V-bottom. Double stateroom, main saloon with two upper and two lower berths. 60-85 H.P. Sterling motor. Speed 15 knots. Electric lights, etc.

No. 2136—Sale or Charter—Twin screw 80 foot power yacht. Two double staterooms, dining saloon, etc. Two 220 H.P. Standard motor. Speed up to 21 miles.

Telephone 480 Whitehall

Cable Address Windward, N. Y.

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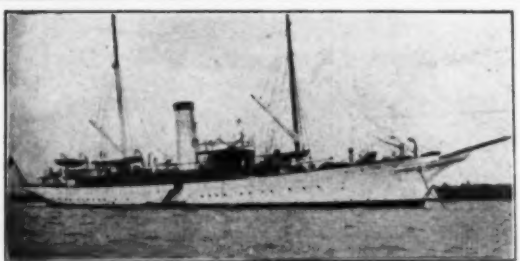
FRANK BOWNE JONES

YACHT AGENT AND SHIP BROKER

29 BROADWAY NEW YORK

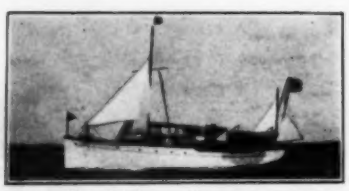
High class yachts of all types for sale and charter; also mercantile vessels of all classes.

Let us know your requirements



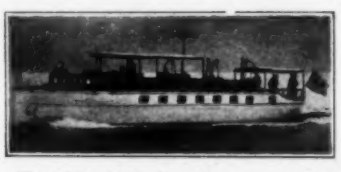
No. 5266—Steel ocean going steam yacht. Length 230 ft. Built to Lloyds highest rating. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

No. 4605—95 ft. gas yacht; built by Lawley; twin-screw; Standard motors; excellent accommodations; good speed; reasonable price. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 4079—70 ft. auxiliary cruiser. Lawley built. Winton engine. Reasonable price. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

No. 4697—60 ft. gasoline cruiser; best build; Speedway motor; double and single staterooms and saloon; attractive price. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 1472—65 ft. houseboat cruiser; best design and construction; light draft; twin-screw; excellent cabin arrangement. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.

Advertising Index will be found on page 118

WILLIAM GARDNER
F. M. HOYT

WILLIAM GARDNER & CO.

PHILIP LEVENTHAL
W. T. HOLLEY

Naval Architects, Marine Engineers and Yacht Brokers

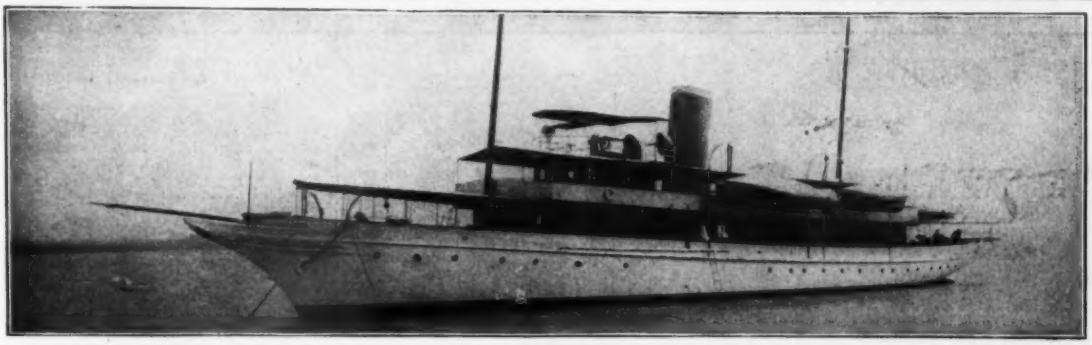
Telephone Call
8836 Bowling Green

1 Broadway, New York

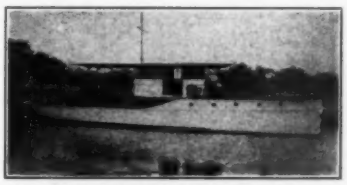
Cable Address
Yachting, N. Y.

We have a complete list of Yachts of every description for sale and charter

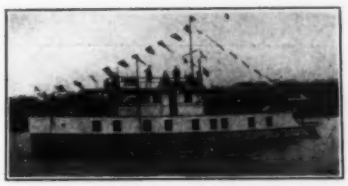
Plans, Photos and full particulars furnished on request



No. 659—Steel steam yacht, deep sea type, 187 x 24 x 10. Of best construction throughout, and of recent build from our designs. Promenade deck full width of boat. Has two large deck houses, with chart house and Captain's room on upper deck. Finely appointed owner's and guests' quarters. Was not used in Government Service. In best possible condition and should be seen to be fully appreciated. Inspection invited.



No. 2283—Raised deck cruiser, with good sized deck house, 60 x 13.6, six cylinder Standard, first class condition. Located Florida.

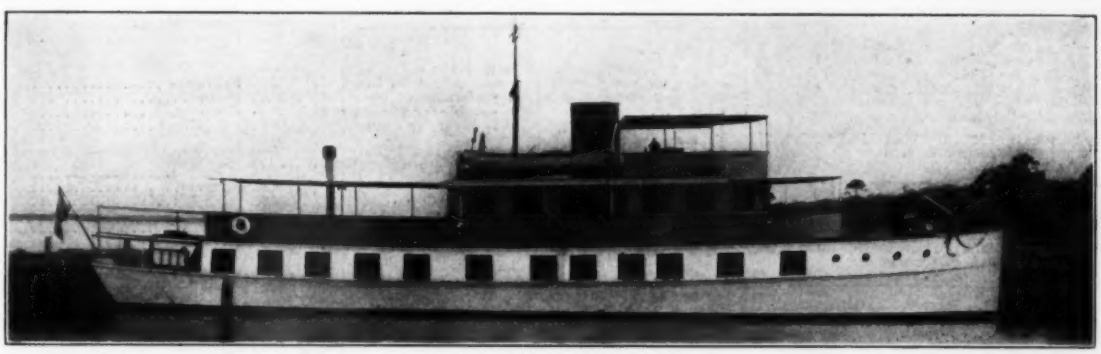


No. 40—H—Twin screw houseboat, 77 x 18.6 x 3. Two Twentieth Century motors. Ideal boat for Southern use. Location Florida.

No. 2044—Bridge deck cruiser, 63 x 13.6 x 4. Twentieth Century motor, 4 cylinder. Speed 11/12 miles. Attractive interior arrangement.

"HOUSEBOAT CRUISER SIESTA"

SALE OR CHARTER NOW IN COMMISSION PALM BEACH DELIVERY



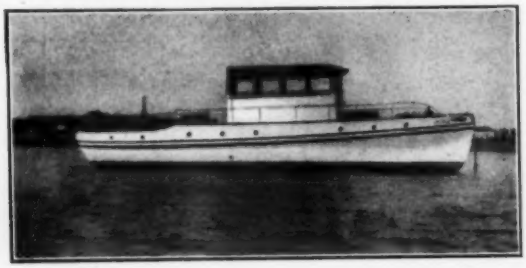
Modern in design and appointments. 100 H.P. motor gives speed of ten miles. Hot water heat, 4 K.W. electric plant, all rooms equipped with fans. 1,500 gallons water, two tons ice. Deck dining saloon and living room. Also owner's stateroom with bath. Below are two double and four single staterooms, with three baths. Deck house finished in mahogany, below, white paneled with mahogany furniture and trim. Each room has beds and windows. Headroom seven feet. Wonderful opportunity to charter this shoal draft cruiser. Dimensions 100 ft. long x 20 ft. wide, draft less than three feet. Siesta was designed and built by McCoy Bros., builders of the most practical boats ever constructed for Florida waters. Ask your broker or McCoy Bros., Palm Beach, Fla.

THE MOTOR BOATING MARKET PLACE

The rate for "For Sale" and "Want" advertisements is 6 cents per word, minimum $1.50. If an illustration is used, the charge is as follows, which includes the making of the cut:
Cut one inch deep, one column wide..... $ 5
Cut 1¼ inches deep, 1¼ columns wide..... $10
Cut 2¼ inches deep, three columns wide..... $20
Terms: Cash with order.

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.



For Sale No. 365—Exceptionally able seagoing cruiser in first class condition throughout. 45 o. a., 9.4 beam, 3½ draught; designed and built by Lawley. Sleeps 8 people; 55 H. P. heavy duty Sterling motor, practically new. Speed 12 miles; separate electric plant. Full cruising inventory. Whole outfit good as new. Permanent deck house ideal feature. Price attractive. Address SIMON FISCH, Yacht Broker, 185 Madison Avenue, New York. Telephone Vanderbilt 6717.

For Sale—1920 practically new 36 foot Elco mahogany express runabout. Address H. F. Keil, Jr., 401 E. 163rd St., New York City.

Wanted—Cruiser 45 to 60 feet long. Must be first class boat. Speed 12 miles or over. Send me particulars. L. Cook, 1918 Sunnyside Ave., Chicago, Ill.

Right and left-hand, 215 H.P. 8 cylinder, high speed, Van Blerck motors, two years old. Rebuilt and guaranteed. $1,200 each. In stock. Bowler, Holmes & Hecker Co., Inc., 259 Greenwich St., N. Y. City.

CANADIANS, Second-hand engine bargains. Send for list.
GUARANTEE MOTOR COMPANY
73 Bay Street, North Hamilton, Ont., Canada

Canada's exclusive wholesale and retail marine engine jobbers. Dominion's Largest Distributors. Free illustrated catalog, showing over fifty manufacturers' products. Canadian Boat and Engine Exchange, Ltd., Toronto, Canada.

Americans—Your money is worth 15% more when spent in Canada than in the United States. Therefore we can deliver a boat to you for less than you can buy it at home. You also save the luxury tax. We are the largest builders of Standardized "V" boats in Canada, and invite correspondence. Pyke Motor & Yacht Co. Ltd., Montreal, Canada.

Wanted—25 ft. to 30 ft. speed boat to run 35 to 40 M.P.H. Not particular about finish. Address: A. G. Schultz, Beardstown, Illinois.

Use "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

TRIMOUNT WHISTLE BLOWER OUTFITS
Blower runs by friction contact with engine flywheel. Whistle of brass, nickel-plated.
Made in 3 sizes.

TRIMOUNT ROTARY HAND BILGE PUMPS
All bronze composition. Suction lift 6 to 20 feet. A lifelong convenience.
Made in 3 sizes.

TRIMOUNT ROTARY POWER CO.
20 Heath Street Boston, Mass
(Factory: 292 Whiting Ave., E. Dedham, Mass.)

Am looking for a small boat, twenty to thirty feet, either runabout or cruiser, with or without engine. Must be a bargain. Mr. Lobenthal, care Bruns, Kimball & Co., 153 West 15th Street, New York City.

Wanted—Launch, new or used. Carry 75 or more passengers. Must be in good condition and up-to-date and price right. John A. Bast, 204 Bedford Ave., S.W., Canton, Ohio.

For Sale—2-cylinder, 12-15 H.P. 4-cycle Scripps engine with magneto and timer ignition, Paragon gear, $290.00. One 4-cylinder, 4-cycle, 7 in. bore, 9 in. stroke, King engine, complete with reverse gear, $800.00. Both engines in excellent condition. One 11 H.P. 2-cylinder, 2-cycle Gray engine, $150.00. One Gray "VM", 20-25 H.P. 4-cylinder, 4-cycle, used as a demonstrator, condition and appearance equal to new, Bosch magneto, impulse starter, reverse gear attached and built-in, $525.00. Gray Motor Co., Detroit, Mich.

Wanted—35 to 45 foot bridge deck cruiser. Speed about 10 miles. Must be in good shape—hull and engine. Name price and give details equipment. Letter only—R. T., Federal Advertising Agency, 6 East 39th Street, New York City.

Wanted—Auxiliary sloop with cabin accommodations for two to four persons. About 26 feet long, with center board, and preferably of wide beam. Must be shallow draft, suitable for Florida waters. H. S. Griggs, 2600 Riverside Ave., Jacksonville, Fla.

Auto Motor Supplies—Buick—Michigan—Stoddard Dayton—Cadillac—Overland—E.M.F. Continental and Buda Motors, all types $50 each and up. Special high tension 2 and 4 cylinder Magnetos $9.50 each. Electric and Gas Head Lamps—Coils—Carburetors—Air Compressors—Generators—Starters, etc. Write for late catalogue. Address Motor Sales Dep't. B, West End, Pittsburgh, Pa.

HAMILTON MARINE ENGINE EXCH., In., 440-444 52nd Street, Brooklyn, N. Y.

Rebuilt Engines in stock for Immediate Delivery to Power Your Motor Ship Yacht or Tender. Write or wire us to hold the Engine you select. Our price is right in comparison to rebuilt Engines.

	H.P.	Inches	Cyl.	Price
Standard	300	10 x10½	6	$4,000.00
Standard	100	8 x10	6	2,800.00
Standard	75	8 x10	4	2,200.00
Standard	37	6 x 8	4	1,160.00
Graig	300	11 x15	6	2,600.00
Pair				5,000.00
Graig	125	11 x15	4	2,000.00
Graig	120	6½x 7	6	1,600.00
Graig	21	5¾x 6	3	360.00
Speedway 60-75		6 x 6	6	1,160.00
Globe	24	7 x 9	2	400.00
Automatic	37½	7½x 9	3	1,000.00
Automatic 18-21		5½x 7	3	660.00
Eagle	24	6 x 7	3	460.00
Fairbanks-Morse	20	6 x 6½	2	460.00
Wolverine	16	6½x 7	2	800.00
Rockaway	40	6 x 6¼	4	500.00
New York.....	40	5½x 6	4	560.00
Trebert 24-30		5½x 6	4	600.00
Trebert 16-20		4½x 5	4	380.00
20th Century..	12	5¼x 6	2	300.00
Hall	12	5¼x 6	2	300.00
Buffalo	24	5½x 6	4	460.00
Buffalo	16	4¾x 5	4	300.00
Jager	40	5¾x 5½	6	600.00
Baldwin	24	5½x 6½	3	400.00
Brown Talbot..	15	4 x 4¾	3	250.00

Above Engines have full outfit as Propeller—High tension Ignition—carbureter—oiling system—Reverse gear—complete from Flywheel to coupling. All above Engines are of the 4 cycle type. 2 cycle reversible type Standard made Engines. Complete from Flywheel to coupling.

24	H.P. Lathrop, 2 cyl.	$375.00
20	H.P. Lathrop, 2 cyl.	360.00
16	H.P. Lathrop, 2 cyl.	275.00
14	H.P. Lathrop, 2 cyl.	260.00
8	H.P. Lathrop, 1 cyl.	125.00
	2 cycle reversible type.	
6	H.P. Lathrop	100.00
	2 cylinder 2 cycle.	
15	H.P. Knox	240.00
11	H.P. Bridgeport	175.00
9	H.P. Bridgeport	168.00
8	H.P. Auto Marine	100.00
8	H.P. Ferro	110.00
8	H.P. Barker	136.00
15	H.P. Victor	225.00
11	H.P. Gray	190.00
10	H.P. Brown, New	245.00
12	H.P. Universal	200.00
	3 cylinder 2 cycle	
21	H.P. Fairbanks	260.00
17½	H.P. Ferro	190.00
17½	H.P. Ferro	150.00
18	H.P. Fairbanks	210.00
	One cylinder	
7½	H.P. Mianus	110.00
5	H.P. Mianus	76.00
3	H.P. Mianus	56.00
5	H.P. Fairbanks	60.00
6½	Bridgeport	100.00
4	H.P. Palmer	60.00
1	H.P. Ball	35.00
9	H.P. Bridgeport Hoist	200.00
20	H.P. Mianus, 2 cyl.	360.00
15	H.P. Mianus, 2 cyl.	260.00
12	H.P. Mianus 2 cyl.	240.00
10	H.P. Mianus, 2 cyl.	200.00
8	H.P. Mianus, 2 cyl., Old style	140.00

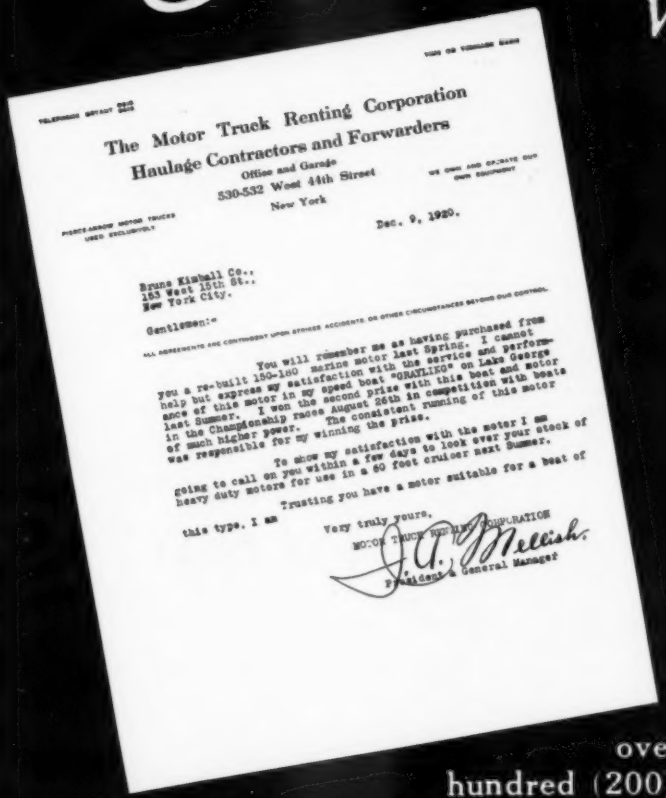
	One cyl. Two cycle	
2	H.P. Caille inboard	$45.
2	H.P. Fairbanks	35.
5	H.P. Specialty, new	70.
8	H.P. Fairbanks, heavy duty	125.
	Two cyl. Two cycle	
6	H.P. Lockwood-Ash	$65.
8	H.P. Roberts	85.
10	H.P. Atlantic Special	95.
12	H.P. Lockwood-Ash	95.
14	H.P. Fairbanks	$115.
20	H.P. Gray	145.
	Three cyl. Two cycle	
12	H.P. Page-Bushman	$105.
15	H.P. Ferro	155.
18	H.P. Fairbanks	185.
	Four cyl. Two cycle	
20	H.P. Waterman	$145.
24	H.P. Gile	135.
24	H.P. Fairbanks	185.
40	H.P. Emerson	$245.
	Four cycle engines	
6	H.P. Dunn, 3 cyl.	$75.
8	H.P. Dunn 2 cyl.	85.
8	H.P. Clark, 1 cyl. 6x6½	135.
12	H.P. Porter, 3 cyl.	145.
	6x7 Doman, 4 cyl., new.	650.
	6½x8, BIG BULL, 4 cyl.	585.
	200 H.P. V-type 8 cyl., air cooled aeromotor.	285.

and many others. We buy and trade motors.
BADGER MOTOR COMPANY, MILWAUKEE, WIS.

Advertising Index will be found on page 118

Rebuilt Motors

What the Man in the Boat Thinks of Our REBUILT ENGINES



The Motor Truck Renting Corporation
Haulage Contractors and Forwarders
Office and Garage
530-532 West 44th Street
New York

Dec. 9, 1920.

Bruns Kimball Co.,
153 West 15th St.,
New York City.

Gentlemen:—

You will remember me as having purchased from you a re-built 150-180 marine motor last Spring. I cannot help but express my satisfaction with the service and performance of this motor in my speed boat "MALLIGO" on Lake George last Summer. I won the second prize with this boat and motor in the Championship races August 26th in competition with boats of much higher power. The consistent running of this motor was responsible for my winning the prize.

To show my satisfaction with the motor I am going to call on you within a few days to look over your stock of heavy duty motors for use in a 60 foot cruiser next Summer.

Trusting you have a motor suitable for a boat of this type, I am

Very truly yours,
MOTOR TRUCK RENTING CORPORATION
J. A. Mellish
President & General Manager

This is a letter selected at random—we have hundreds more like it.

It will pay you to look over our stock of over two hundred (200) rebuilt and guaranteed machines before deciding on a power plant for your boat.

Our bargain list will be sent free on request

BRUNS, KIMBALL & CO.,

153-155-157-159 West 15th Street New York City, N. Y.
Telephones:—Watkins 467 and 468

We also carry a full line of the following new engines in stock:—

Sterling	Kermath	Wolverine	Murray & Tregurtha
Gray-Prior	Peerless	Doman	
Hartford	Waterman	Missouri	

THE MOTOR BOATING MARKET PLACE

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Cut 2¼ inches deep, three columns wide..... $20

Terms: Cash with order

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

For Sale—1 2 KW. direct connected Carlisle & Finch electric outfit, with arc search lamp. Percy M. Child, 1110 14th St. N.W., Washington, D. C.

For Sale—Several mushroom anchors, red leaded, weight 156 lbs. Net. $12.50 each f.o.b. Washington, D. C., Percy M. Child, 1110 14th St., N.W.

For Sale—28 ft. mahogany single-step hydroplane, 40 H.P. motor. 5 passenger. In commission. $800.00 for quick sale. G. A. Naumann, 134 Jefferson Ave., Detroit, Mich.

For Sale—8-10 H.P. Monarch, $90.00; 12 H.P. Detroit, $140.00; 20 H.P. 3 cyl. Ferman, $140.00; 24 H.P. Kahlenberg, 8 H.P. and 6 H.P. Lockwood-Ash, 3 cyl. 21 H.P., 2 cyl. 9 H.P. and 4 H.P. 1 cycle Gray, 2 H.P. Outboard, $25.00; 3 H.P. Koban, $75.00; 8 H.P. Ferro, 1 and 4 H.P. Auto Marine, 4 cylinder Metz, 60 H.P. 6 cycle Lamb, 4 H.P. Palmer, 5 H.P. Truscott, 7 H.P. 2 cylinder Eagle, 2 and 5 H.P. Caille New Liberty Drive, $50.00; 1 No. 3 Carlyle Johnson, 1 Joes, 1 No. 3 Standard and 1 Model B. Gies Reverse Gear. Get our complete list. Jesiek Boat Company, Grand Rapids, Michigan.

For Sale — A 40 ft. raised deck cruiser complete to the minutest detail with every possible convenience. Double stateroom and saloon sleeping five or six. Price $3,000. Cannot be duplicated for double. For complete description address Yachting, c/o MoToR BoatinG.

For Sale—38 ft. raised deck cruiser, excellent seaboat—in fine condition—4 cyl. engine, galley, toilet completely equipped, sleeps six. Fine boat at a very low price. E. F. Merrow, Hyde Park, Mass.

Kermath Motors—The following used engines offered for sale by the Kermath Mfg. Company have all been completely overhauled at the factory with every necessary new part properly fitted; have gone thru the regular factory test, are all in absolutely perfect condition and guaranteed for a period of one year against defects in workmanship and material just the same as a new engine.

1	20 H.P. unit plant, Kingston magneto, 1919 model	$425.00
1	20 H.P. separate, 1919 model, Kingston magneto	375.00
1	16 H.P. unit, 1919 model, Atwater-Kent	370.00
1	12 H.P. separate plant, 1915 model with new Bosch magneto	175.00
1	Gray motor, model D Junior, 4 cylinder, 3 x 4 unit plant, Kingston magneto	300.00

Kermath Mfg. Co., Detroit, Mich.

Wanted—Raised deck cruiser about 35 ft. in length, not over 3 ft. draught, must be modern and in first class condition. Wish to exchange recent model high power automobile in perfect condition. Boat must be located near Philadelphia. Address Box 49, care of MoToR BoatinG.

For Sale or To Let—A modern boat plant, with complete machine shop, two marine railways, three gasoline stations. Best location in America, near New York. Address, Paine Statistical Corporation, 756 Broad St., Newark, N. J.

Kermath Motors—We will accept any make of motor in exchange for new Kermath motors. Now is the time to make your trades and get a fine new Kermath motor which will give you all the pleasure there is to be had in motor boating. Kermath Mfg. Co., Detroit, Mich.

For Sale—40 ft. 5 in. x 6 ft. 9 in. mahogany runabout "Chinook", speed 25 M.P.H. Equipped with six cylinder 5½ x 6 Van Blerck engine, electric starter, generator, electric lights, windshield, upholstered seats, top and curtains. Boat is in excellent condition and immediate shipment can be made to any point desired. Value $7,500.00; will sell for $5,000.00. Address Winton Engine Works, Cleveland, Ohio.

For sale—1 pair Bausch & Lomb prism binoculars, 6 by 30 power. Just the thing to complete your motor boat equipment. Buy now for next season. Percy M. Child, 1110 14th St. N.W., Washington, D. C.

HESS MONO-MARINE

A High Grade Single Cylinder Four Cycle Engine of 4-5 H.P.

Price $175. Complete

This is the ideal engine for your tender, fishing boat or any other craft up to 30 ft. in length. On larger boats it is suitable for operating generators for electric lighting plant or wireless outfit.

Most approved and up-to-date four-cycle design. Every part is large and strong. The motor is sturdy enough to endure real heavy duty service.

A most important Hess feature is that many of its parts are interchangeable with standard Ford engine parts, carried in stock by dealers the world over. This includes timing gears, valves, valve springs, connecting rod, piston, bearings, etc.

The Hess is furnished complete with Hot-Spot Manifold, Bosch High Tension Magneto, Stromberg Carburetor, List Clutch, Columbian Bronze Weedless Propeller, etc.

WRITE TODAY FOR CATALOG

We have an excellent money making proposition for agents and dealers.

HESS MOTOR COMPANY

120-130 Sherman St. Detroit, Michigan

Exclusive Export Sales Dept., W. D. Blood & Co., 44 Whitehall St., New York, N. Y.

Do You Want to Sell Your Boat?

Thousands of buyers are in the market, looking for boats of all sizes and types. Now is the time to advertise your present boat for sale and place your order for a new one if you want delivery for the opening of the season.

Or perhaps you want a new engine or more power. Sell your old engine or equipment and the money for this will partly pay for the new engine.

The MoToR BoatinG Market Place is the biggest boat and engine exchange in the world. About 25,000 possible customers pass through this market every month. Many of these are looking for just what you have to dispose of. If you are looking for a bargain yourself, try a "Wanted" advertisement.

The cost of an advertisement is insignificant. See rates at the top of this page. For the February issue your copy, photograph and remittance should reach our office by Jan. 12th.

Don't Delay. Mail it now.

MOTOR BOATING MARKET PLACE

119 West 40th St. New York, N. Y.

Advertising Index will be found on page 118

NAVAL ARCHITECTS & YACHT BROKERS

Thomas D. Bowes, M. E.
NAVAL ARCHITECT AND ENGINEER
Offices:
Lafayette Bldg., Chestnut and Fifth Sts.
PHILADELPHIA, PA.

COX & STEVENS
Engineers and Naval Architects
Yacht Brokers
15 WILLIAM STREET, NEW YORK CITY
TELEPHONE 1375 BROAD

WAVE COLLECTING
Runabouts—Rowboats—Cruisers
Build your own boat from my plans, or full size paper patterns.
17 years' practical experience
LOUIS E. GERMAIN, N.A.
600 N. Andre St. Saginaw, Michigan

William H. Hand, Jr.
NAVAL ARCHITECT
NEW BEDFORD, MASS.
HAND-V-BOTTOM DESIGNS
Send stamps for latest catalog.

FREDERICK K. LORD
NAVAL ARCHITECT
120 BROADWAY NEW YORK

CHARLES D. MOWER
Designer of
SENSIBLE CRUISERS
POWER—SAIL—AUXILIARY
Twenty-five years' practical experience
347 Madison Avenue New York City

MONTREAL
286 St. James St.
Telephone Main 3352

NEW YORK
2 Stone St.
Telephone
Bowling Green 6077

N. E. McCLELLAND & CO., Ltd.
NAVAL ARCHITECTS
YACHT BROKERS

STRONG & BEEKMAN
Yacht and Ship Brokers
29 Broadway New York
Yachts—all types, Sale or Charter; Commercial Vessels, Steamers, Sail and Auxiliaries; Plans, Specifications, New Construction.
Tel. Whitehall 537
Cable Address "Strobick-New York

Yard and Shop

(*Continued from page 42*)

Low Cost of Boating Story Starts Rivalry

Following publication in the May issue of MoToR BoatinG of the record made by the Barker motor, owned by W. H. B. Orchard, of Noroton, Conn., in low maintenance cost, owners of other motors of the same make have made claim to even greater economy shown by their engines. Readers of the May issue will recall that at the time Mr. Orchard put his boat overboard for its seventeenth season this summer his motor repair parts had cost an average of only $2.16 a year. Incidentally it may be noted that the engine has not required additional repairs although near the end of its seventeenth season, during which it was used on a cruise from Noroton, via Long Island Sound, Hudson River, canal and Lake Champlain, to Burlington, Vt., and return.

A few days after the low cost article was published, Mr. Joshua Bulifant, of Camden and Avalon, N. J., personally visited the Barker factory and said he could see no reason to brag about Mr. Orchard's engine. "Mine has not cost me near that much," is the way he spoke of his engine although he had no definite record of expense. E. L. Hanford, of East Norwalk, who has one of the first Barker motors, built in 1901 and still in commission, is supported by his son, Charley, in the claim that the engine has not averaged as much as $2 a year for repair parts.

D. D. Hill, keeper of Cross-Over Island Light, Hammond, N. Y., has a Barker motor not as old as the others mentioned but which undoubtedly has done more work. Concerning his engine Mr. Hill writes: "It has been run about 30,000 miles and is still in fine running order. I am on an island and use the boat every day, and it lays out to the weather from April 1 to Dec. 15 of each year. Then I haul it on the beach and put a piece of canvas over it until spring. I have put in a pair of main bearings, three new rings and a new pump in ten years and it is good for ten years more."

New Boat Building Corporation

Last June the motor boat works of Joseph Leyare, at Ogdensburg, New York, were taken over by a new corporation, Huff, Daland & Company. This company is engaged in the manufacture of airplanes, flying boats and high class motor boats. The plant has been rebuilt and thoroughly equipped with modern machinery especially adapted for this production. The officers of the new company are Thomas H. Huff, President; Elliot Daland, Vice-President; Louis G. Randall, General Manager; Charles T. Porter, Treasurer; Causten Browne, Secretary. Mr. Huff throughout the war was chief engineer and designer for the Standard Aero Corporation. Mr. Daland is mechanical engineer of long experience. Louis G. Randall was general manager of the Standard Aero Corporation plants and has had wide experience in the construction of various types of motor boats. The plans of the company call for only the highest class work in its product. Mr. Leyare is still in charge of the motor boat work and his ample experience will insure the quality of all boats which will be built.

(*Continued on page 56*)

Sixteen Years Designing Experience Specialty Seagoing Yachts
110-Ft. Yacht "CONSUELO"
J. MURRAY WATTS, N. A.
136 South Fourth St. Philadelphia
Phone: Lombard 2072

Jordan Bros. Lumber Co.
Manufacturers
White Cedar Boat Boards and Cedar Products
Norfolk, - - Virginia

HONEST CLAY
Heavy Duty Engines
Powerful slow speed four cycle engines for heavy cruisers and work boats. The product of 22 years' experience.
One, two and four cylinders—6 to 50 H.P.
Write for Catalog
THE CLAY ENGINE MFG. CO.
664 East 72nd Street Cleveland, Ohio

SPRAY-HOODS
BOAT CUSHIONS
ATLANTIC-PACIFIC MFG. CO.
124 Atlantic Ave. Brooklyn, N. Y.

RONSON WRENCH
Eleven Handy Tools in One
Eight standard open-end wrenches, screw driver, bottle opener and alligator jaw.
—$1.00—
Write for dealer proposition.
THE ART METAL WORKS
Aronson Square Newark, N. J.

AUTOMATIC EXTENSION REEL
For Electric Lamps
Pat. Jan. 30, 1917. Approved by the Underwriters. An ideal fixture for motorboats, yachts, boat houses, garages, machine shops, etc. Enables you to use light anywhere up to 25 ft. from fixture. Automatic lock holds at any distance. Automatically rewinds cord when finished. Write for prices.
THE CINCINNATI SPECIALTY MFG. CO., Inc.
1820 Powers Street Cincinnati, Ohio

CAPE COD 20-FT. DORY LAUNCH
The Safest little family boat built. Motor housed in.
Also
17' Sail Dory
16' Shallow Draft
17' Life Saving Dory
14' Outboard Motor
16' Row Boat
12' Row Boat
CAPE COD SHIPBUILDING CORPORATION
Builders of craft to 150' length, or 10' draft.
Winter Storage
367 Main St., Wareham, Mass.
New York Show Room, 412 Eighth Avenue, New York City

Pressure KHOTAL Oil Stoves
Made in one, two, three or more burners. Complete catalogue on application to manufacturers.
WILLIAM H. OTTO METAL GOODS CORP.
401 St. Pauls Ave. Jersey City, N. J.

THE THOMAS LAUGHLIN CO.
Portland, Maine, U. S. A.
Marine Hardware
Sold by all progressive marine dealers.
Catalog sent free to dealers on request.

Every Boat should be Fully Equipped with
EVER-WARM SAFETY SUITS
YOU CAN'T CHILL—
YOU CAN'T DROWN
Approved and used by U. S. Navy. Ask for Pamphlet "23"—it tells the whole story.
National Life Preserver Company
11 Broadway, New York, Tel. Bowling Green 8669

Paint DEVOE Paint
DEVOE & RAYNOLDS CO., INC.
NEW YORK CHICAGO

Write for Bulletin No. 59
"GOLDEN GLOW" SEARCHLIGHTS
Electric Service Supplies Company

The Great Two-Cylinder
KOBAN
ROWBOAT MOTOR
The only vibrationless rowboat motor. Write for new catalogue.
KOBAN MFG. CO.
246 South Water St., Milwaukee, Wis.

Hunting Boats, Canoes, Rowboats, Fishboats and Motor Boats. Catalog Free. Save Money. Order by Mail. Please state what you are interested in.
THOMPSON BROS. BOAT MFG. CO.
1907 Ellis Avenue Peshtigo, Wis.

Sootless SPARK PLUGS
Mica Insulation means a total absence of all the trouble peculiar to other insulating materials used for spark plugs.
Sootless Plugs are mica insulated and have rustproof brass jackets.
Price $1.50—at dealers. Send for booklet.
OAKES & DOW CO., 308 Atlantic Ave., Boston, Mass.

4-Cycle Engines of Quality
Six sizes—light, medium, and medium heavy duty. 3 h.p. to 20 h.p.—1 to 2 cylinders.
Gasoline or kerosene. Suitable for workboats, fish skiffs, sampans, pleasure boats, etc. Working parts on lightweight models, interchangeable with Ford engine parts.
Live agents wanted in all parts of the world
SEATTLE-STANDARD ENGINE MFG. CO.
Seattle, U. S. A.

NO MOTOR BOAT COMPLETE WITHOUT
STEWART CUSTOMBILT NECESSITIES
SEE OUR AD IN NEXT MONTH'S ISSUE

AVOID disaster by using a DIRIGO compass on that boat. All materials first class. No rubber gaskets to rot. A very hard pivot and high-grade jewel. Navy degree circle on dial. Brass and mahogany binnacles. Also new course finder and bearings instrument. Send for descriptive catalog.
EUGENE M. SHERMAN
Box 3 Bellevue, Wash.

Yard and Shop

(*Continued from page* 42)

Gierholtt Motors Make a Hit

The exhibit of Gierholtt outboard motors at the New York Motor Boat Show has been a complete success. Every visitor was convinced that the Gierholtt device is a most sensible one for outboard work. Many orders were placed and dealers from all parts of the country are asking for representation. A very busy season is in prospect as a result of this exhibit.

A Novel Invention

A novel invention is just being announced to motor boat and marine hardware dealers by the I. D. Stine Screw Holes Co., Waterbury, Conn. The device consists of a metal screw-hole that is designed to fit any wood screw or machine screw, and this is simply driven into the material with a hammer, the special features being that it can be used in any place where a screw can and it thereafter becomes a permanent hole. These are the first ready-made screw holes to be put on the market, and from the opinions of mechanics who have tried them out they are due to meet with considerable sale and success. This invention is a great time-saving device. Ever since the first screw was used trouble has been encountered in the driving of either wood screws or machine screws in every kind of material. In many cases a hole must be bored, and after the screw is set a slight additional turn of the screwdriver will often strip the threads, thus wasting the time of the user and demanding that the hole be plugged and the screw driven once again. These novel ready-made screw-holes eliminate all this trouble and waste.

C. B. Amory at Miami

Clement B. Amory, treasurer of the Consolidated Shipbuilding Corporation, is reopening the southern office of his company on January 6. Friends of the Consolidated Shipbuilding Corporation are invited to call on Mr. Amory, 1100 Boulevard, Miami, Florida, for any designs for new craft or for replacements to their present boats.

Gar Wood for Commodore

G. A. Gar Wood, Detroit's famous speed-boat racer, has been nominated for commodore of the Detroit Yacht Club for 1921. Wood's nomination has been urged for some time, but he did not consent to the proposition until last week, and he was formally nominated at the meeting of the directors on Friday evening. Just who will be nominated on the slate with Wood has not been determined. The annual meeting and election will be held Monday, January, 10.

Wood consented to run for commodore only on a platform which calls for increasing of the club's present facilities. For two years the Detroit Yacht Club has been contemplating increasing its membership and improving its clubhouse. Wood, if elected, pledges to either remodel the present clubhouse on Bell Isle or to build a new home for the yachtsmen. If the club is remodeled it is planned to build an addition to the clubhouse and also to extend the dock to the harbor line, giving the club the finest mooring facilities of any organization on the Great Lakes. It is only a matter of four years since Wood took an interest in power boating from a sports standpoint. In that time he has won three gold cups for the D. Y. C. and given it international prominence by the bringing of the Harmsworth Trophy back to America from England last August. In addition, he has won many minor events. Wood was not present when nominated, as he was attending the National Motor Boat Show in New York. Wood is now vice-commodore of the Motor Boat Club of America, the national organization recognized in international motor boat competitions.

New Factory Buildings

The Wheeler-Schebler Carburetor Co., Indianapolis, Ind., have just completed three new factory buildings. Constructing and equipping these additions cost considerably over $100,000. The largest of the three buildings is 132 feet long and 108 feet wide, two stories high with basement, of fireproof construction. The offices of the company have removed from the old building to the new building. The other two buildings, which are used for testing motors, are 50 x 20 feet, one story.

Mullins Steel Boats Can't Sink
When you think of buying a boat, whether it be a 16-foot Runabout, a big 26-foot Auto Boat, or something in between — remember that Mullins Steel Boats are guaranteed for life. They cannot sink, leak, water-log, dry out or open at the seams — never require calking. Designed by America's foremost naval architects. More than 70,000 in use. Big catalog of steel or wooden motor boats, rowboats or canoes, on request.
The Mullins Body Corp., 601 Franklin St., Salem, O.

TIME SAVER
Bearing Abrasive
For perfect bearing surfaces
296 Andrews St., Rochester, N. Y.

Universal Specialties
Lowest possible prices on all marine supplies.
Class 1 Outfit $6.00
UNIVERSAL MOTOR BOAT SUPPLY CO.
Atlantic Highlands, N. J.

Marine Hardware and Supplies
In planning the spring overhaul, our catalogue will help you select the right equipment. *Prompt Delivery—Right Prices.*
W. & J. TIEBOUT
Established 1853—Incorporated 1892
118 Chambers Street New York City

Advertising Index will be found on page 118

Belle Isle Bear Cat

26′ x 6′ 6″ Speed Runabout. Guaranteed speed 32 miles per hour. 125 H.P. 4-Cylinder Hall-Scott Engine

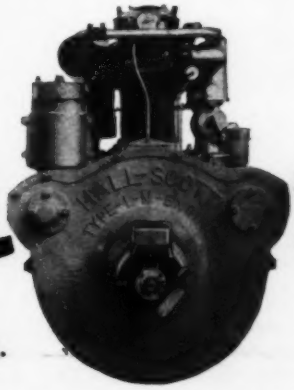
"Belle Isle Bear Cat" which attracted so much attention at the New York Motor Boat Show is a typical illustration of the success of the modern high speed runabout when equipped with Hall-Scott power.

The Belle Isle Boat & Engine Co., builders of Bear Cat, specify Hall-Scott engines because of their remarkable power, speed and economy and their unquestioned ability to stand up to the needs of the average owner with the minimum of care and attention.

Never before in marine history has a high speed marine engine equalled Hall-Scott's 1920 record—not a single bearing, connecting rod, piston, cylinder, crankshaft or other major part lost, including all of the strenuous racing events in which Hall-Scotts participated.

Perhaps you are not interested in attaining racing speeds but the engine which will survive the acid test of racing has the necessary endurance to assure you of genuine satisfaction in your own boat.

Write us for booklet "Hall-Scott Powered Boats". We will gladly mail you a copy.



HALL SCOTT

MOTOR CAR COMPANY, Inc.

37-39 Associated Service Bldg.
Buffalo, N. Y.

Factory
Berkeley, Calif.

Boats of the Better Class—

"Leisure Hour," Combination Row and Sail Boat. Sixteen feet long by forty-eight inch beam. We believe this to be the finest combination row and sail boat built.

SKANEATELES BOAT AND CANOE COMPANY

Skaneateles, N. Y.

Builders of the Finest Row Boats in the World

DE FOREST

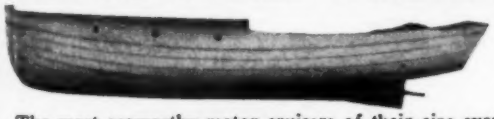
WIRELESS TELEPHONE *for* BOATS

Continuous, Sustained and Reliable word-of-mouth communication over distances up to 30 miles. Absolutely practical and now in successful operation. Easy to use; just talk! Write for full information on the new DeForest Type OT-10 Oscillion "Radiophone" Transmitter.

DEFOREST RADIO TELEPHONE & TELEGRAPH CO.,
1415 Sedgwick Ave., New York

LEE DEFOREST, INC.,
451 3rd St., San Francisco

SEABRIGHT DORY CRUISERS



The most seaworthy motor cruisers of their size ever built. If you want real pleasure at the lowest cost and with the utmost safety you should own one of these famous Seabright boats. We also build Work Boats, Ship Tenders, Life Boats, Surf Boats, etc.

Write today for prices

THE BANFIELD BOAT AND LAUNCH WORKS

Office and Works:
Atlantic Highlands New Jersey, U. S. A.

HARRISON'S

New Standardized

32 FOOT CRUISERS

"Are Real Boats"

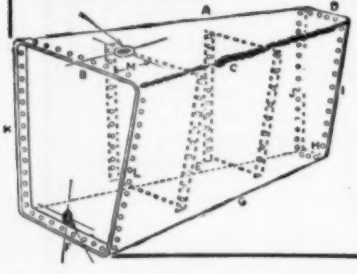
With one of these Cruisers you will have all the JOY there is in BOATING. They have more conveniences than the average 35 or 40 footer. Very fast. Seaworthy and Comfortable.

Order Now for Spring Delivery

R. W. HARRISON BOAT WORKS

Bay View Park—Toledo, Ohio

Gasoline Tanks, Air Whistle Tanks, Mufflers, Stacks, Special Plate and Sheet Metal Work for Pleasure Boats.



L. O. KOVEN & BROTHER

Main Office,
158 Ogden Ave.,
Jersey City, N. J.

Branch, 50 Cliff St.,
New York City.

LUNKENHEIMER AUTOMOTIVE ACCESSORIES

MARINE MOTORS

IN CHICAGO

Sterling **Kermath**
Scripps **Universal**
Frisbie **Evinrude** **Gray**

We are agents for the Chicago Territory for the above leading makes of marine engines. For prompt service and intelligent co-operation you will find genuine satisfaction if you place your order with us. We always have a large line of engines in stock for immediate delivery, and a complete assortment of repair parts.

Rebuilt Marine Engines

Write for our latest list of rebuilt engines, telling approximately the type and power you require or the details of your boat. Engines are thoroughly overhauled and rebuilt by our marine engine experts.

W. L. MASTERS & COMPANY

229 North State Street Chicago, Ill.

Rochester 45 Foot Enclosed Bridge Cruiser

High class cruising boats in standard sizes: 36-40-45-50 and 55 feet.

ROCHESTER BOAT WORKS, Inc.
10 Charlotte Station Rochester, N. Y.

Advertising Index will be found on page 118

PALMER ENGINES

TRADE MARK REG. U.S.PAT. OFF.

Palmer engines have been used extensively for twenty-five years in both pleasure and work boats.

Wite for Catalogs

TWO CYCLE
2½ H.P. to 10 H.P.
One and Two Cylinders

FOUR CYCLE
3½ H.P. to 80 H.P.
One to Six Cylinders

Branches and Distributors

NEW YORK
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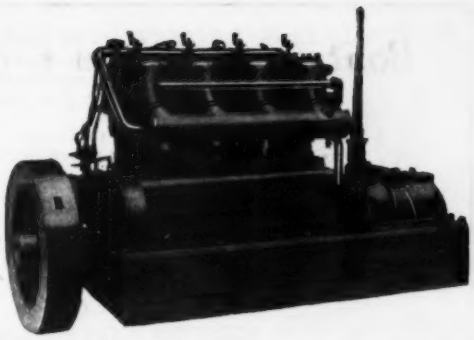
NORFOLK
PORTLAND
SEATTLE
VANCOUVER



PALMER BROTHERS ENGINES, Inc., COS COB, CONN.

MARINE ELECTRICAL EQUIPMENTS
SHIPS TELEGRAPHS

SINCE 1845 WE HAVE BEEN DESIGNERS AND MANUFACTURERS OF COMMUNICATING AND SIGNALLING SYSTEMS FOR NAVAL AND MERCHANT VESSELS.

CORY ELECTRICAL AND MECHANICAL TELEGRAPHS AND LIGHTING EQUIPMENTS ARE THE RECOGNIZED STANDARDS.

CHAS. CORY & SON, Inc.

CORY SAFETY SERVICE

NEW YORK
183-187 Varick Street
Main Office and Factory

PHILADELPHIA
207 Market Street

SEATTLE
515 Hage Bldg.

SAN FRANCISCO
11 Mission Street

Improved Motor Boat Closet

Figure 1404

Dimensions: 18 x 18 x 11" high to top of bowl; 2½" cylinder. For above or below water line.

The best little closet on the market today, possessing many of the advantages of the large size toilet. All brass and porcelain. Oak seat and cover.

All prices subject to market advances, which are continually changing.

THE J. H. CURTISS CO.

The J. H. Curtiss Co.
Pioneer Specialists in Marine Sanitary Fixtures

Since our advertisement appeared in the first issue of MoToR BoatinG, December, 1907, hundreds of Curtiss fixtures have been installed in motor cruisers and yachts of all sizes, including some of the finest boats launched within this period.

The Curtiss line is exceptionally complete, varied in type, size and price to meet every possible requirement. Each model has been designed in accordance with our wide experience in boat work and can be depended upon in quality, service and durability no matter whether it is our highest or lowest priced model.

"PRICES ON APPLICATION"

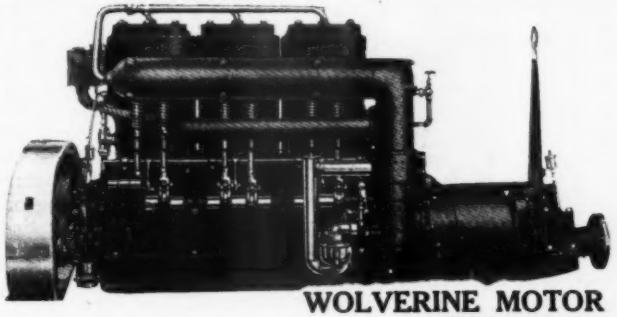
With Pump

Cock on pump swings upward, thus preventing breaking of bowl. Soap-dish is porcelain and removable.

No. 5
Height, 19 in.
Width, 19 in.
Depth Closed, 6 inches.
Quartered Oak Case, or Mahogany Case.

Lining and Fixtures Nickel-plated. Porcelain Bowl. Mahogany or Quartered Oak Case.

2 South Street, New York



"WOLVERINE"

The Motor with the Bore and Stroke

HEAVY DUTY MARINE ENGINES

KEROSENE { Used successfully for 15 years. Device built into engine.

WOLVERINE MOTOR WORKS
33 Union Avenue
Bridgeport, Conn., U. S. A.
(Formerly Grand Rapids, Mich.)

Catalogue No. 113 gives full information

A Real, Low-Voltage Searchlight!

BY far the most powerful searchlight of the incandescent type. Unlike anything you have ever seen.

Built entirely of brass with our own specially designed heavy glass reflector and bulb.

Furnished in three sizes: 7", 10", and 14" for 6, 12 or 32 volts.

Finished in Polished Brass, Black Nickel, and Battleship Gray.

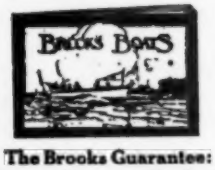
Projects an intense narrow beam of 116,000 to 530,000 Candle Power a distance of One Half Mile to One Mile, depending on voltage.

Send for Catalog

SOUTHLAND STEAMSHIP COMPANY
Lebby Products Department
Savannah, Georgia

FOR ALL KINDS OF CRAFT
TWO SOUTH STREET
NEW YORK CITY

You Can Build Your Own Boat



and save 2/3 the cost
By the BROOKS K. D. SYSTEM

Brooks Boats are handsome, seaworthy, up-to-date in design and easy to build. We also build complete boats.

The Brooks Guarantee:
Your Money Back if You Are Not Satisfied
Send for catalogue showing all models.

BROOKS MFG. CO., 1101 Rust Ave., Saginaw, Mich.

"LIBERTY KID"

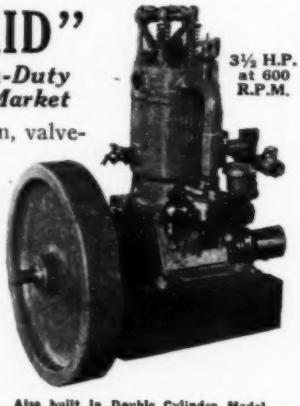
The Best Little Medium-Duty Marine Engine on the Market

High grade four cycle design, valve-in-head, removable cylinder head, bronze rocker arms, push-rods, plunger pump, etc. Over 200 in actual use.

Immediate deliveries on early orders. Writefor catalog and testimonials.

AGENTS AND DEALERS WANTED

A. G. HEBGEN
Manufacturer and Sole Distributor
440 Market St., San Francisco, Cal.



Also built in Double Cylinder Model giving 8 H.P.

Does Your Boat Leak?

Send for our Booklets "How to Make Your Boat Leakproof" and "Marine Glue—What to Use and How to Use It"

Any old boat, so long as the frames are in fair condition, can be made watertight by following the instructions in the above booklets. This applies to anything that floats from a canoe to a yacht. Put your leak troubles up to us and we will help you to stop them.

JEFFERY'S MARINE GLUE
IN ALL THE VARIOUS GRADES

For Sale by all Yacht, Boat and Canoe Supply Houses; Hardware, Paint and Oil and Sporting Goods Dealers.

L. W. FERDINAND & CO.
152 Kneeland St. BOSTON, MASS.

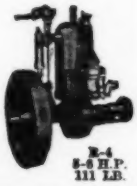
WATERMAN MOTORS

LIGHT WEIGHT **LONG LIFE**

Manufactured by

Arrow Motor & Machine Co.

727 Frelinghuysen Ave.
Newark, N. J., U. S. A.



STRATFORD OAKUM
AND
CAULKING COTTON

meet all U. S. Government specifications and receive the highest classifications of American Bureau of Shipping and Lloyds Register of Shipping.

YACHT DEPARTMENT
George Stratford Oakum Co., Jersey City, N. J.

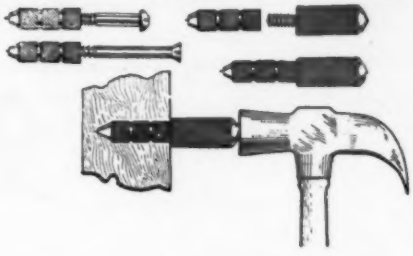
GAS-CO-LATOR
VISIBLE GASOLINE FILTER

Filters the gasoline right before your eyes. Insures clean fuel and perfect carburetion. Eliminates 9/10 of your engine troubles and shows whether your fuel system is working or not. Fully guaranteed. Money back if not satisfied. Simple to install. Ask your garage or write direct.

Visible Gasoline Filter Co.
1426 S. Wabash Ave. **Chicago**

Advertising Index will be found on page 118

THE ONLY SCREW HOLES IN THE WORLD



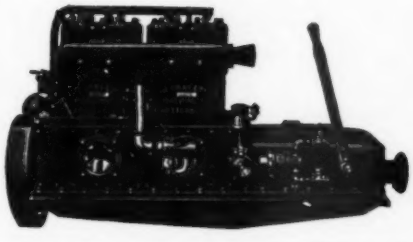
I. D. STINE SCREW HOLES CO.
Waterbury Conn.

Immediate Delivery from stock on the following sizes:

No.	Wood Screw Holes	Length	No.	Machine Screw Holes	Length
4		⅛"	4-36		⅛"
6	"	13/16"	6-32	"	13/16"
7	"	13/16"	6-32	"	11/32"
8	"	13/16"	7-32	"	13/16"
9	"	13/16"	8-32	"	13/16"
10	"	13/16"	9-30	"	13/16"
11	"	1"	10-24	"	13/16"
11	"	13/16"	10-32	"	13/16"
12	"	1"	11-24	"	1"
12	"	13/16"	11-24	"	13/16"
14	"	17/16"	11-24	"	¼"
16	"	17/16"	12-24	"	1"
18	"	17/16"	12-24	"	13/16"
20	"	17/16"	14-24	"	17/16"
			16-22	"	17/16"
			18-20	"	17/16"
			20-20	"	17/16"
			¼"-18	"	17/16"
			5/16"-18	"	17/16"

Each size packed 100 Screw Holes and one Driving Head in a Box.

GRAY-PRIOR
FOUR CYCLE MARINE MOTORS
Built up to a Standard—not down to a price



A Clean-Cut Power Plant
For Commercial Boats and Cruisers

Model D-4, Medium Heavy Duty
36 Horse Power Bore, 4½ inches Stroke, 8 inches

Write today for full description and prices

THE GRAY & PRIOR MACHINE COMPANY
56 Suffield Street Hartford, Conn., U. S. A.

The pleasures of boating enhanced by the feeling of Security one enjoys if your Craft is protected by *GOOD WOOLSEY PAINT and VARNISH—TOP and BOTTOM.*

WOOLSEY COPPER PAINTS
AND
MARINE PAINT SPECIALTIES ARE THE WORLD'S STANDARDS

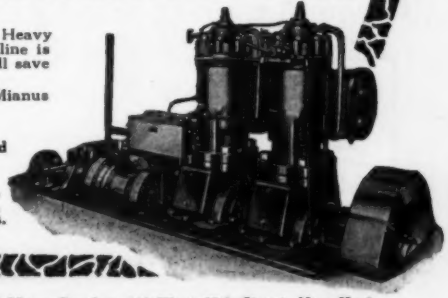
Copper Paints—Brown, Red and Green, Yacht White, Deck Paint, Marine Mixed Paints, Metal Bottom Paint, Seam Paint, Seam Compounds, Sparon (Spar) Varnish, Engine Enamels, Canoe Enamels, Boat Bottom Seam Compound, Copper Bronze, Light Sea Green and Regatta Green Yacht Bottom Paints, etc.

C. A. WOOLSEY PAINT & COLOR CO., Jersey City, N. J., U. S. A.

Send for our Marine Booklets, Free—Contain Color Spots and information "How to Paint a Boat."

MIANUS
MARINE MOTORS

Thousands Stopped to See *Thousands Are Considering*
THE FIRST REALLY SUCCESSFUL HEAVY OIL ENGINE



For your cruiser, auxiliary or commercial boat, the Mianus Improved Diesel Heavy Oil Engine (Leissner System) has no equal for service and economy. Gasoline is high in cost. Heavy oil is cheap and plentiful. A year or two of operation will save you the cost of your engine in fuel.

More simple than the gas engine—more economical than the Diesel. The Mianus Heavy Oil Engine demands your attention.

Five sizes up to 60 H.P.

The famous Mianus two cycle and four cycle engines are also manufactured by us.

Your copy of our catalog is waiting for you. Write for it.

The Mianus Motor Works, Stamford, Conn., U. S. A.
New York, N. Y. Baltimore, Md. Norfolk, Va. Boston, Mass.
Portland, Maine Eastport, Maine St. John, N. B.

KNOW YOUR POWER BOAT MOTOR

Motor boat owners want to know all about their engine. This free booklet is filled with information of value. Get your copy today. It tells of the L-A motor and the 30 day free trial plan.

LOCKWOOD-ASH MOTOR CO.
2107 Jackson St. Jackson, Mich.
(79)

Build It of Cypress

"the Wood Eternal"

and forget about planking rotting and the need of constant repairs. For 20-ft. Runabout or 200-ft. Cruiser—or more—or less—no wood compared with grand, old CYPRESS "the wood Eternal." Write TODAY for Vol. 19 of the famous CYPRESS POCKET LIBRARY, "CYPRESS FOR BOATS." It tells *Why*. It's FREE.

TIDEWATER CYPRESS, "the Wood Eternal," is identified by the CYPRESS trade-mark "arrow." Please write us immediately if you can't find it.

Southern Cypress Manufacturers' Assn.
1317 Perdido Building, New Orleans, La., or
1317 Heard National Bank Bldg., Jacksonville, Fla.

America's Finest Motor Boats

Whatever you want—Runabout, Speed Boat, Cruiser, Rowboat or Canoe.

There's a **Racine Wis** Made for you

—or we will design and build one to meet your needs.
Tell us the type of boat in which you are interested and we will mail you our special catalog immediately.
RACINE BOAT COMPANY, 1812 Clark St., Racine, Wisconsin

For YACHTS and MOTOR BOATS

MASCO PRODUCTS

Masco Motor Waste (in 1 lb. cloth bag)
Masco-Cloth (for polishing and cleaning)
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MASSASOIT MANUFACTURING CO.
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This is what it is and what it does. A tiny device that you fasten to the top of the spark plug. It increases engine efficiency 37 per cent. The only device to intensify spark. Approved by the United States Government. Thousands of Sparko-Gaps being sold every day. Large guaranteed profits.

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Engine Repairing and Overhauling of the highest class

Send Us Your Repair Work

We do nothing but engine repairing and we do it right. We make any part for any engine or complete engine to your order. We use only the best material and workmanship and give quick service. Send us your engine to overhaul and it will be as good as new. We do cylinder grinding, welding, etc., and maintain a repair and tow boat that goes anywhere within fifty miles day or night. We have a few second-hand engines that are real bargains.
Tel. Dorchester 5573M.

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Your runabout cruiser or yacht is not properly equipped until Ritchie Instruments are installed. Flat Card Compass, illustrated, has great magnetic force, making the compass much easier to adjust in iron ships. 2 in. to 10 in.

Write today for your copy of our catalog. It contains the compass best suited for your boat.

E. S. RITCHIE & SONS
Established 1850
110 Cypress St. Brookline, Mass.

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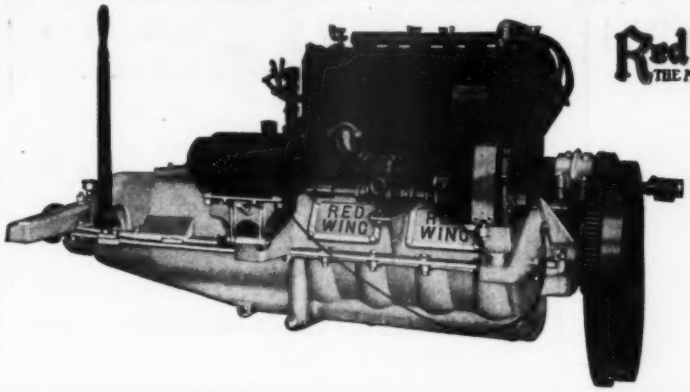

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THE MOTOR WITH POWER TO SPARE

BUILDERS PREFER IT

Look up the best boat builders in the country and you'll find them installing Red Wing THOROBREDS in their hulls. The reason is simply that a real motor means pleased owners and boosters for their boats. Nothing "queers" a good hull like a poor motor. If your boat builder doesn't install the THOROBRED, ask him why.

Tell us the sort of service you require and let us make a recommendation based on our experience with thousands of America's most successful motor boats.

Five sizes, 10 to 40 H.P., Electric starters if desired. The engines burn either kerosene or gasoline.

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Designers and Builders of
EXPRESS CRUISERS
TRENTON MICHIGAN

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FINISHED CRANK SHAFTS
We are furnishing them to some of the leading marine engine builders. Carbon and Alloy Steel, Heat Treated to your own specifications. We grind all Pins and Bearings. Forged, machined, and finished complete in our own plant. Let us quote you.

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SPEEDOMETER for MOTOR and SAIL YACHTS
IS THE ONLY KNOWN DEVICE FOR DETERMINING THE EXACT SPEED OF ANY BOAT. ASK FOR INFORMATION
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Repairs Railways Storage Repairs
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A Hand Tool Producing Accurate Results That Surpass an Expensive Power Driven Machine

Adjustable on all types of motors.
One simple operation for adjustment.
Guaranteed accuracy to one-quarter thousandths of an inch.
Can be operated without removing shaft from engine.
A Peters' Crankshaft Grinder will true egg-shaped crank pins in one-fifth the time ordinarily required by any other method.
Price, $75.00.

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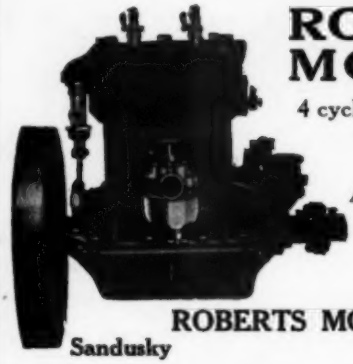
PETERS Patented
CRANKSHAFT GRINDER



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4 cycle, 8 horse power
Price $170.00

Also 4, 8 and 16 H. P. 2 Cycle Motors

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Sandusky Ohio

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TRADE MARK
(Pronounced Courie)

Waterproof Spar Varnish

For all OUTSIDE AND INSIDE work. Guaranteed not to scratch white, turn white, in salt or fresh water, chip, crack or bloom.

Try it on your boat. Sold everywhere.

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BROOKLYN, NEW YORK

Know Your Engine's Temperature With the

BOYCE MOTO-METER

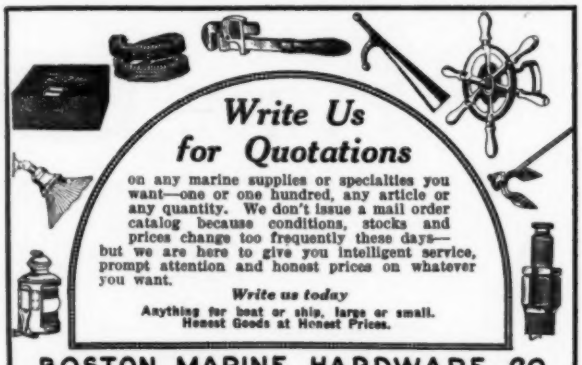
Engine efficiency depends on the temperature—a cold engine is wasting fuel. A too hot one means trouble—scored cylinders—pre-ignition—warped valves. The Boyce Moto-Meter registers every change from 32° to 212° F.

Let us send you a free copy of "Marine Engine Efficiency," by Gerald Taylor White.

Price, $18.00 complete with 8 ft. of tubing ready to install.

THE MOTO-METER CO., INC.
Long Island City, New York

BOYCE MOTO METER



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on any marine supplies or specialties you want—one or one hundred, any article or any quantity. We don't issue a mail order catalog because conditions, stocks and prices change too frequently these days—but we are here to give you intelligent service, prompt attention and honest prices on whatever you want.

Write us today

Anything for boat or ship, large or small. Honest Goods at Honest Prices.

BOSTON MARINE HARDWARE CO
259 Atlantic Ave., Boston, Mass.

Marine Joints

that Transmit Full Power at Full Speed.

Have been giving satisfaction for sixteen years.

BLOOD-BROS. MACHINE CO.
Pioneer Builders of Universal Joints
ALLEGAN MICHIGAN

DELCO-LIGHT

The Delco-Light Marine Set gives a complete electric light and power service, *independent of the main engines.*

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The Gordon Silencer and Under-Water Exhaust

No Noise No Smoke
No Pounding No Grease
Does not retard motor

With Fresh or Salt Water Fittings

F. O. B. Cleveland

$12.00

The Gordon Propeller & Mfg. Co.
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ENGINES
ARE GOOD ENGINES

YOU'LL NEVER BE SORRY IF YOU HAVE AN ANDERSON ENGINE IN YOUR BOAT

Ask any user

For pleasure craft or commercial boats

Write today for catalogue and prices

Anderson Engine Co. 4032 North Rockwell St. Chicago, Ill., U. S. A.
New York Office, N. W. Corner Broome and Lafayette Streets

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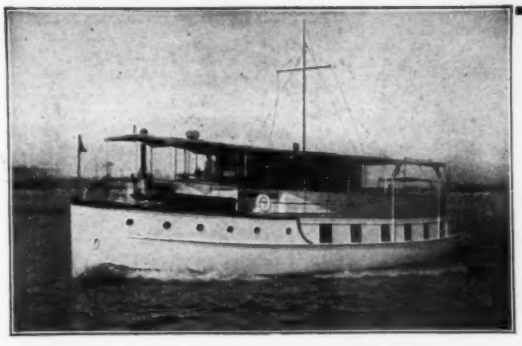


The 61-foot Mathis-Built Houseboat

is equipped with every comfort convenience. Separate electric-lighting plant and storage batteries, electric driven pump for shower baths and complete hot water heating system.

It is just possible that we may have later one of these 61-ft. houseboats for sale—delivered complete in Palm Beach. Communicate with us promptly if you are considering a houseboat for this Florida season. We may be in position to assist you.

Wending Her Trim Way to FLORIDA

There's her photograph—showing every sleek, boaty line of her. Slipping through at 11 or 12 miles per hour—and the homiest comfort aboard.

A truly remarkable combination is this newest

61 ft. Mathis-Built Houseboat

uniting a large part of the roominess that characterized our 80-ft. houseboats of last year with a goodly portion of the lower operating cost that distinguished our 1919 52-ft. houseboats.

Drawing but 42 inches of water, she has that distinctive quality native to all Mathis-built houseboats—the ability to go anywhere. Seaworthy, too—just like every one of her noted predecessors launched from the Mathis yards.

MATHIS YACHT BUILDING CO.

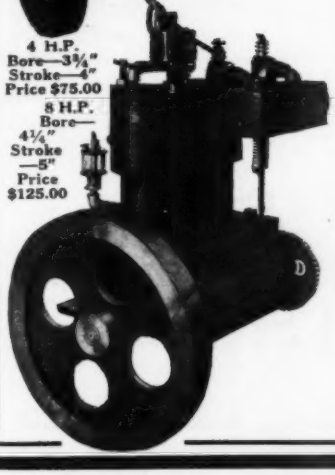
Specialists in Cruisers and Houseboats from 40 to 120 feet.

Cooper's Point **Camden, N. J.**

2 H.P. $42.50
Bore—3¾" Stroke—4"

4 H.P. Bore—3¾" Stroke—4" Price $75.00

8 H.P. Bore—4¼" Stroke—5" Price $125.00



DUNN FOUR CYCLE MARINE MOTORS

The Lowest Priced Four Cycle Motors Made

1921 MODELS—KEROSENE OR GASOLINE

If you are looking for a lot of nickel plating, bright paint and fancy finish, you will be disappointed in the Dunn. But if you want a motor for service, this is the motor you are looking for.

Our prices speak for themselves. They cover the bare cost of material and labor. We have figured close and held both items down to essentials because there are thousands of boat owners who cannot afford or do not feel justified in paying the high prices charged for most engines today.

All Dunn models are four cycle type, of up-to-date design. Special attention has been given to easy starting and accessibility for easy repair and replacement.

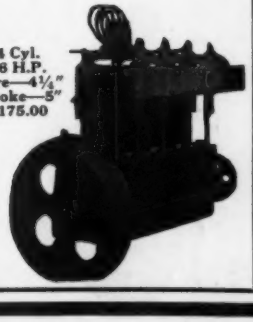
The prices quoted include complete equipment, propeller, shaft, couplings, coil, spark plugs, mixing valves and oil cups. Foreign buyers should add 10% to cover cost of boxing for export and delivery F. O. B. steamer at New York City.

Write today for catalog

DUNN MOTOR WORKS

OGDENSBURG NEW YORK U. S. A.

3 Cyl. 6 H.P. Bore—3¾", Stroke—4" Price $100.00
3 Cyl. 12 H.P. Bore—4¼", Stroke—5" Price $150.00



4 Cyl. 16 H.P. Bore—4¼" Stroke—5" $175.00

The Chute Planking and Decking Clamp

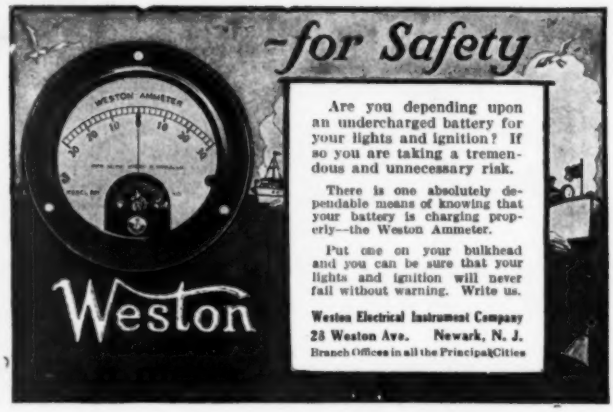
ONE OF THE GREATEST TIME AND LABOR SAVING DEVICES EVER INVENTED FOR BOAT BUILDERS' USE

Made of malleable iron. Can be instantly fastened to timbers or deck frames. Adjustable up to 3". The small teeth on the sliding jaw take a firm hold without marring. Can be used up or down or on the turn of the bilge.

A light blow of a hammer against the sliding jaw engages the teeth and the wedge may then be inserted between the clamp and the plank. The harder the wedge is driven, the tighter the clamp holds, it will stand any strain necessary to force the plank into position for fastening.

This clamp is now in use by some of the largest and best boat builders in the country. It is the most practical and serviceable clamp made for planking and decking.

WOODWARD & CHAMBERLAIN, Inc.
Manufacturers
14 Fulton Street New York, N. Y.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WESTON AMMETER
Weston
Are you depending upon an undercharged battery for your lights and ignition? If so you are taking a tremendous and unnecessary risk.
There is one absolutely dependable means of knowing that your battery is charging properly—the Weston Ammeter.
Put one on your bulkhead and you can be sure that your lights and ignition will never fail without warning. Write us.
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Branch Offices in all the Principal Cities

Run Your Boat on Kerosene

Cheaper than gasoline and equally good when used with the

OLSEN KEROSENE VAPORIZER

Sold on 30-Day Money-Back Guarantee

Fits any 1" to 3" carburetor. Perfect combustion—no waste, smoke, or smell. Greater flexibility and mileage—less carbon. Fuel costs greatly reduced. Send for details.

U. S. VAPORIZER COMPANY
214 STATE STREET BOSTON, MASS.

Socony gasoline has the low boiling point which insures utmost power and mileage. Its quality is always dependable—every gallon the same, and obtainable everywhere throughout New York and New England.

STANDARD OIL COMPANY OF NEW YORK

SOCONY
MOTOR GASOLINE

Every Gallon the Same

The sign of a reliable dealer and the world's best Gasoline

STEARNS McKAY

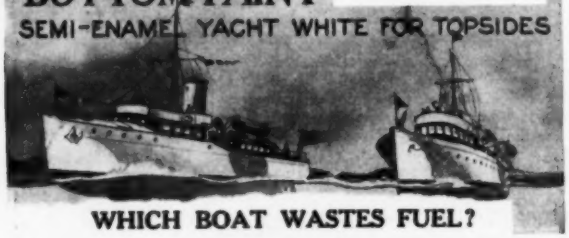
MARBLEHEAD ANTI FOULING GREEN BOTTOM PAINT

FOR STEEL OR WOOD STAYS CLEAN

Gives the greatest efficiency with the smallest fuel consumption. Semi-enamel White for topsides.

Stearns-McKay Mfg. Co. Marblehead, Mass.

SEMI-ENAMEL YACHT WHITE FOR TOPSIDES



WHICH BOAT WASTES FUEL?

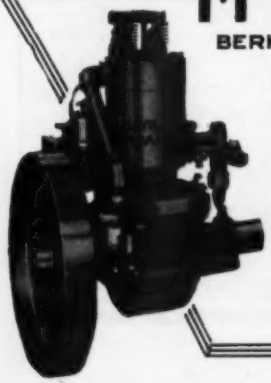
Richardson BOATS

Standardized
Runabouts and Cruisers

Knock Down or Complete

Built right—Priced right

RICHARDSON BOAT COMPANY,
370 Sweeney Street North Tonawanda, N. Y.



MAYNARD-ADAMS ENGINE CO.

BERKELEY, CALIFORNIA

A Real Engine for Real Boats

A 3½ H.P. four-cycle engine that is not a toy but a high grade and highly developed power plant for skiffs, dories, tenders, small workboats, etc. All parts subject to wear are replaceable with FORD parts. Immediate deliveries.

DEALERS: Add this big seller to your line. Write for terms.

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Eighth and Delaware Streets
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ONE WAY ONLY—THE BEST WAY—BUY!

We Sell Our Sets

Wireless for Ship *and* Land Stations

CUTTING & WASHINGTON RADIO CORPORATION
GENERAL OFFICES
6 and 8 West 48th Street, New York, N. Y.

Advertising Index will be found on page 118

THE JOHNSON MARINE REVERSE GEAR

Built for Service

POWERFUL FRICTION CLUTCHES, with a grip that responds instantly from full speed ahead to full speed astern, and that holds on the long steady run without slipping, heating or appreciable wear.

HARDENED ALLOY STEEL in all gears and shafting; the material that gives ample strength with light weight and small bulk; working parts accurately finished, firmly supported, and hardened against wear.

BALL BEARINGS to take both the radial and propeller thrust load incorporated in the gear itself, protecting it from shock and strain, giving a smoothness of operation that eliminates power loss and defies wear.

COMPLETELY ENCLOSED and oil tight, so that perfect lubrication is assured. Clutches and gearing flooded with oil. Nothing to clog or run dry and put the gear out of order.

These few simple facts easily explain why there is better service in the Johnson Gear.

For full particulars write Department 25

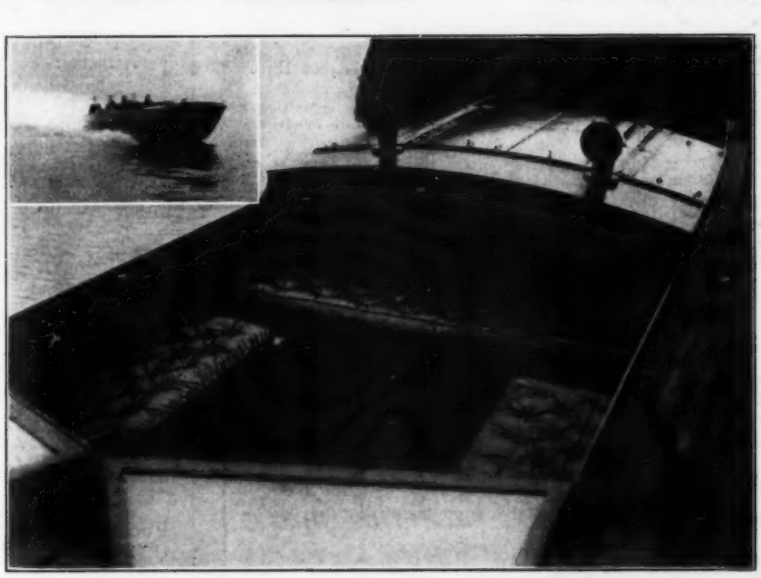
THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN

Surface Propeller and Inverted V-Bottom Boats

SEA SLED

Hickman Patents In All Countries

Seaworthy, comfortable and dry shoal draft express runabouts with roomy and luxuriously upholstered cockpits capable of making maximum speeds of 40 miles per hour and upwards, built to individual requirements.
Pictured is a 32-foot mahogany Sea Sled with 2 Model G. R. 6-cylinder Sterling motors. Speed over 40 miles per hour.



THE SEA SLED COMPANY

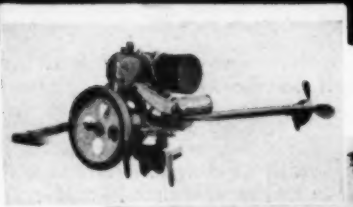
BOSTON, MASS.
WEST MYSTIC, CONN.

The Viper Co., Ltd.
Pictou, N. S.

Boeing Airplane Co.,
Seattle, Wash.

The GIERHOLTT
Direct Drive Outboard MOTOR

2 H.P. Price $75.00 (Battery ignition) f.o.b. Marine City



Weighs only 50 lbs.

Lightest Simplest Easiest to Carry Best for Shallow Water, Weeds and Small Streams or Lakes

Convert your rowboat, canoe or tender into a real motor boat with a Gierholtt 2 H.P. Outboard Motor. It weighs only fifty pounds and provides a complete power plant that drives small boats along at lively speed.

The Gierholtt is the simplest motor that can be built. Battery or magneto ignition. The direct drive eliminates gears, complication, trouble and weight. It is easy to carry, attach, start, operate and steer. Quickly taken apart for packing.

You can run at full speed in the shallowest water, without fear of weeds, sunken logs or rocks. The propeller is protected from damage. Should the propeller become fouled with weeds you can swing it inboard without removing and free it instantly.

Write today for Catalog and Prices

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MARINE CITY, MICHIGAN, U. S. A.

CUT RATE

MARINE SUPPLY HOUSE

Everything for Motor Boats

Catalogue Mailed Free

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ZUNDEL

Until February 1st

A 10 per cent discount on all sizes of Portlights purchased in lots of three or more.

This special offer is made in order that you may become acquainted with the Zundel axiom

Best Quality - Right Prices

Every accessory for the pleasure or commercial boat.

Regular Prices	Pol. Brass	Galv.
5 in.	3.60	3.00
6 in.	4.65	4.30

R. W. ZUNDEL COMPANY, Inc.
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BOAT SUPPLIES

UNITED STATES RAILROAD ADMINISTRATION
Director General of Railroads
NEW YORK CENTRAL RAILROAD

Utica, N. Y., Dec. 15, 1920.

MoToR BoatinG
119 West 40th St., New York

GENTLEMEN:—

The hand book and number of MoToR BoatinG were received O. K. Many thanks.

You wrote you hoped I enjoyed reading your magazine. I can truthfully say I read it from cover to cover and can hardly wait until the next one comes. I look forward to the first of the month as I would for Xmas.

Again thanking you, I remain

Yours truly,

GEO. H. LONG,
Box 23, Union Station, Utica, N. Y.

Built by

LUDERS

The Last Word in Yacht Designing and Building

Luders Marine Construction Company

Stamford, Conn.

"Western" Diesel Engines

Marine and Stationary Types

Sizes: 25 B.H.P. Per Working Cylinder in single and multiples up to six cylinders.

Fuel: Low gravity oils in their natural state.

No high pressure injection air compressors nor high pressure fuel pumps. The simplest successful engine built operating on the true Diesel principle. Write for Bulletin No. 528.

WESTERN MACHINERY COMPANY

928 North Main Street, Los Angeles, California, U. S. A.
Branch: Rialto Bldg., San Francisco

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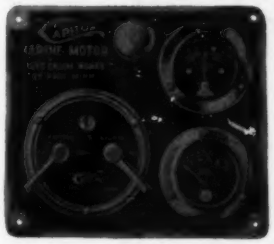
"The Capitol" A Marine Unit Power Plant

For Speed Runabouts and High Class Cruisers



Dash instrument and switch plate controlling ignition, lights, ammeter, oil gauge and dash lights

COMPLETELY ENCLOSED—COMPLETELY EQUIPPED

FROM the first glance the Capitol inspires the confidence of marine engine buyers. Its clean cut, well proportioned exterior with every moving part enclosed and every accessory built in immediately suggests the fact that it is the product of master designers. There isn't a smoother, quieter running marine engine. Vibration and noise are eliminated by perfect balance of moving parts, wide-faced helical-cut timing gears, force feed lubrication, ball bearing universal joint, three point suspension, and many other improvements over ordinary construction.

Highest Grade Equipment

Delco ignition, Atwater-Kent two-unit starting, lighting and generating system, Willard storage battery, Stromberg or Schebler carburetor, instrument plate shown above and all other necessary equipments are included.

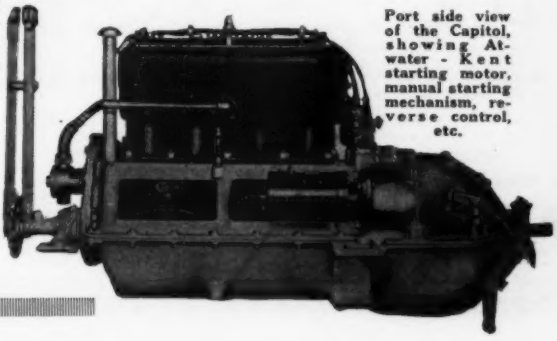
If you own or are planning the kind of a runabout or cruiser that deserves a really excellent power plant, you should know more about the Capitol, its special features of construction and how it is built.

Bore 4¼" Stroke 5½"
High Speed Model 60-65 H. P. at 2000 R. P. M.
Medium Speed Model 30-34 H. P. at 1000 R. P. M.

Write today for complete description and prices

Auto Engine Works, St. Paul Minn., U.S.A.

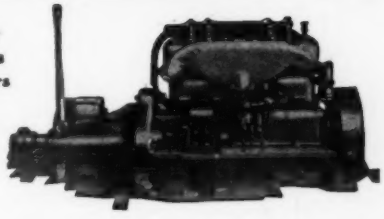
EASTERN AGENTS
Adolph Apel, Atlantic City, N. J. Gray Aldrich Co., Boston, Mass.



Port side view of the Capitol, showing Atwater-Kent starting motor, manual starting mechanism, reverse control, etc.

G. H. MASTEN CO., Inc.

New York Agents for
Vulcan Marine Engines
Caille Perfection Motors



Manufacturers of Motor Boat Tops, Spray Hoods, Life Rafts, Life Preserver Cushions, etc.

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OBEY THE LAW!

Masten Reversible Life Preservers make this possible. They have Gov't approval and carry our guarantee of satisfaction or your money back.

Masten Life Preservers for all purposes are of Masten standard and most economical in price.

Motor Boats, Motors, Marine Accessories and Supplies

Swim with the "Liberty" Swimming Belt

Learn to swim in half an hour. Just make the strokes,—the "Liberty" will hold you up. They make a beginner a swimmer — a swimmer an expert.

YOUR DEALER CARRIES MASTEN EQUIPMENT

Your Dealer will Supply You. $2.00 by Mail.

G. H. MASTEN COMPANY, Inc., New York City

Display Showroom, 38 East 9th Street, ½ block West of Wanamaker's

"JASCO"
SAFETY FIRST
TANK

"JASCO"
SAFETY FIRST
TANKS

DID YOU EVER EXAMINE YOUR GASOLINE tank? Ever wonder whether its construction increased or minimized the possibility of a leak —a fire—an explosion—even your own safety?

Equip your boat with one of these everlasting, rivetless, "Safety First" tanks and stop worrying about explosions.

Made of the finest drawn steel—tested and proved—
you can take pride in the ownership of a Jasco Tank.

THERE'S A JASCO TANK MADE ESPECIALLY FOR YOUR BOAT.

Write us today. *We will gladly send you descriptive literature*

JANNEY, STEINMETZ & COMPANY

Main Office, Philadelphia **New York Office, Hudson Terminal Bldg.**

CHASE

Leatherwove

MADE BY SANFORD MILLS
SANFORD, ME.

'Tis good news to hear that Chase Leatherwove has been proclaimed "the better boat upholstery of today."

Re-upholster with Chase Leatherwove

Write for Samples

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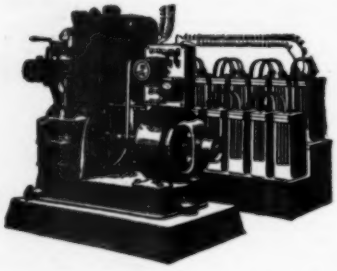
New York Detroit San Francisco Chicago

GencoLight

MARINE LIGHTING PLANT



THE more you know about the fine points of electrical construction, the more will you appreciate the superiority of the Genco-Light Marine Plant. Built in 32 and 110-volt sizes up to 6 K-W, complete with battery, and suitable for every light and power service, afloat and ashore.

Live Dealers and Agents Wanted

GENERAL GAS - ELECTRIC CO.

C. W. Dean, Marine Distributor, Norfolk, Va.

P. O. Box 863 **Office: 417 to 421 William Street**

DEFOE Knock-Down Boats

A 50-Ft. Frame Ready to Take Apart and Ship

SEND for illustrated price list of our sixty standard hull designs from 18 to 70 ft., and tell us what you want.

If you require a LARGER BOAT, in steel, composite or entire wood construction, send YOUR SPECIFICATIONS.

Our knock-down system will save you money, and may enable you to get a boat that would otherwise be impossible for you.

Your distance from boat building centers is no bar to your obtaining a knock-down boat of ANY SIZE AND TYPE.

DEFOE BOAT & MOTOR WORKS

3220 State Street **Bay City, Mich., U. S. A.**

A 65-Ft. Defoe Cruiser Complete

Advertising Index will be found on page 118

LAWRENCE PATENT PROCESS

Defects in castings as well as scores are repaired perfectly by this process.

SCORED CYLINDERS REPAIRED PERFECTLY

SCORED cylinders can be repaired as good as new at comparatively small cost by the Lawrence Patent Process. New cylinder castings which show slight defects in the bore can be made as perfect as a flawless casting. Cracked water jackets are repaired perfectly and permanently.

Our expert workmen electrically fuse a silver nickel alloy into the defects or scores. The bore of the cylinder is not enlarged; the standard piston and rings fit the same as when new. The compression is restored and our work is *guaranteed for the life of the motor.* Positively cannot warp or harm the cylinders in any way because the cylinder is not heated.

Repairs by the Lawrence Patent Process are quick, inexpensive, uniform and absolutely permanent. Our plants give 24-hour service.

Write us to-day for quotation on your work, stating size of cylinder and size of score or defect, or if you are in a hurry, ship your cylinders at once to our nearest service branch.

L. LAWRENCE & CO., Established 1862 **292 HALSEY ST. NEWARK, N. J.**

LAWRENCE SERVICE PLANTS

Buffalo—10 Summer St. Minneapolis—14 N. 9th St.
Chicago—1522 Michigan Ave. Newark—292 Halsey St.
Cleveland—6529 Euclid Ave. New York City—355 W. 57th St.
Detroit—85 Meldrum Ave. Philadelphia—1601 Summer St.
Los Angeles—1030 S. Grand Ave. Pittsburgh—5102 Baum Blvd.
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LICENSEES NEARLY EVERYWHERE

A few good territories for licensees still open
Inquire at our License Office, Woolworth Building, New York City

The Lawrence Process is covered by broad patents in the United States, Canada, England, France, Italy and other countries. Infringers will be prosecuted to the full extent of the law.

TRADE LAWRENCE MARK

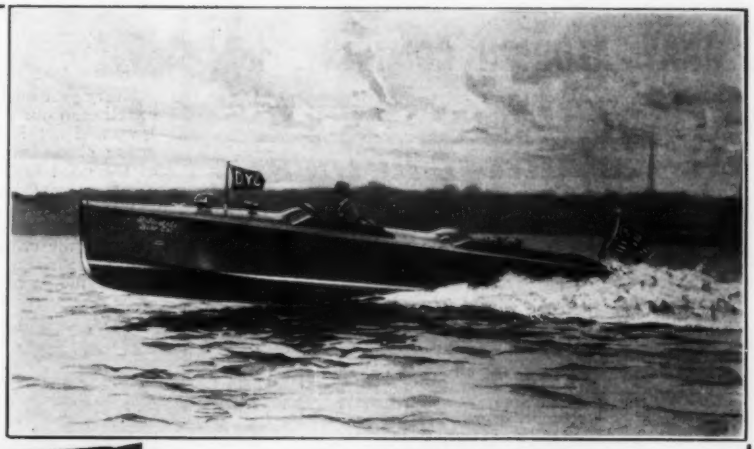
Belle Isle Boats

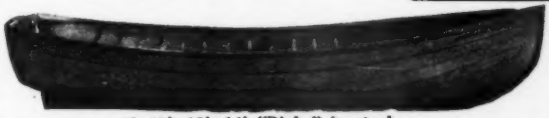
The BEAR CAT—A sensation everywhere. Speedy, reliable, and a wonder in performance.

Four Cylinder
HALL-SCOTT
Motor

A combination that "can't be beat."

BELLE ISLE BOAT & ENGINE CO.
DETROIT, MICHIGAN



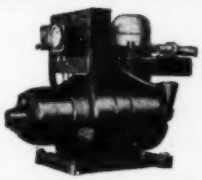


8', 10', 12', 14' "Dinks" in stock

The BELLE ISLE "BEAR CAT"

Builders of the Famous DAVIS "AMERICAN BEAUTY" Dingheys, Sail, Power or Rowing. Known the world over.

THE AMERICAN BOAT COMPANY, DETROIT, MICHIGAN



KER-O-EL Burns Kerosene—Makes Electricity

ELECTRIC LIGHT PLANTS

FOR BOATS OF FROM 40 TO 70 FEET

WATER COOLED, NO HEAT, NO VIBRATION, UTMOST SATISFACTION

Address all communications to E. H. Croft, President, The Ker-o-eL Sales Co., 8401 Detroit Ave., Cleveland, Ohio, U. S. A. THE MATTHEWS COMPANY, Manufacturers, PORT CLINTON, OHIO, U. S. A.

Crockett's Spar Composition
is the only varnish which will last a season on a deck

Get ready for 1921 now. Test the durability of Crockett's Spar Composition at our expense. Send to us for a free sample can of it. Procure a piece of glass about 6 x 12 inches. On one half end pour a puddle of the sample; on the other, on the same side of the glass, pour a similar puddle of the most durable varnish known to you. Stand on edge to drain off and allow to harden three days in warm room. Put the glass outdoors with the varnish side exposed to the elements. Southern exposure is the most severe. Examine after three months, then every month until boat finishing time arrives, when you will find that the other one has started to perish and the film of Crockett's Spar Composition is elastic and intact. Take a knife and scrape the Composition. Note the toughness of the film. Then buy Crockett's Spar Composition for use in 1921 and never again stop using it.

THE DAVID B. CROCKETT CO.
Bridgeport, Connecticut

THE BISSELL VARNISH CO.
Successor

Send for booklet "How to Varnish a Boat" and do it today

GRAY-ALDRICH COMPANY, Inc.
84 Atlantic Avenue **Boston, Mass.**

Rebuilt Engines

All engines thoroughly rebuilt unless otherwise specified.

No.			
252	24	H.P. Fairbanks-Morse Type "G" 2 cyc. 4 cyl. New engine	$375.00
255	36	H.P. Lathrop, 3 cyl. 2 cyc. and Reverse Gear.	800.00
262	12	H.P. Fairbanks-Morse Type "T" Special Electric Stationary Kerosene	450.00
271	9	H.P. Fairbanks-Morse Type "T" Special Electric Stationary Kerosene	425.00
272	6	H.P. Lathrop, Standard Model	150.00
275	80	H.P. Wolverine, 3 cyl. 4 cyc. Prop. and Reverse Gear	2500.00
277	16	H.P. Lathrop, 2 cyc. 2 cyl.	285.00
287	24	H.P. Lathrop, 2 cyl. 2 cyc. Reverse Gear	500.00
290	36	H.P. Lathrop, 3 cyl. 2 cyc. Reverse Gear	735.00
292	5	H.P. Lathrop, 1 cyl. 2 cyc. overhauled	95.00
295	16	H.P. Regal, 4 cyl. 4 cyc. Rev. Gear, Magneto L. Hand	400.00
297	16	H.P. Dunn, 4 cyl. 4 cyc. Distributor and Coil.	165.00
298	24	H.P. Lathrop, 2 cyl. 2 cyc. and Rev. Gear	500.00
299	24	H.P. Lathrop, 2 cyl. 2 cyc., no Rev. Gear	400.00
300	3	H.P. Faultless Seine Purser, 2 winch heads	135.00
301	12	H.P. Lathrop, 2 cyl. 2 cyc. Rev. Gear	250.00
302	5	H.P. Wolverine, with Rev. Gear	250.00
303	16	H.P. Lathrop, 2 cyl. 2 cyc. with coupling	310.00
304	4½	H.P. Lathrop, 1 cyl. 2 cyc.	85.00
305	4-6	H.P. Metz & Weiss Stationary Kerosene	200.00
306	12	H.P. Bridgeport, 2 cyc. 2 cyl. & Rev. Gear	255.00
307	16	H.P. Lathrop, 2 cyl. 2 cyc.	267.00
308	2	H.P. Original Stationary engine	35.00
309	6	H.P. Star Stationary engine	125.00
310	7½	H.P. Lathrop, 1 cyl. 2 cyc.	155.00
311	16	H.P. Lathrop, 2 cyl. 2 cyc.	295.00
312	20	H.P. Lathrop, 2 cyl. 2 cyc.	380.00
313	24	H.P. Lathrop, 2 cyl. 2 cyc.	420.00
314	48	in. x 32 p. Hyde R. H. Propeller, 2 blade, bored	150.00
315		Myers Bulldozer Power Pump, 5 in. x 5 in.	75.00

Progress in Nineteen Twenty-one Foretold

(*Continued from page* 8)

offered to sell us so much as a spark plug, and the number of gold-buttoned gentlemen who volunteered to give us spring demonstrations in their silver-and-mahogany craft could be counted up on the fingers of one foot.

But this year it was different. I studiously refrained from annexing so much as a key-ring from marine varnish makers, and I was twice mistaken for a sea dog with nothing left in the world but a million dollars and a passion for the finest boats that float. Wherefore, I enjoyed myself with the unsophisticated abandon of the young lady with the green hat who commanded her escort to explain how a Hickman Sea Sled could run in summer when there was no ice in the harbor.

In common with a few thousand other fans I climbed the gangways of the cruising craft and peered sapiently into the engine spaces of displacement racers. Generally I looked and marveled, as was expected of me, but occasionally I found myself asking whether this or that boat was intended for beauty or for duty. There'd be a polished brass flooring around a power plant, and I'd wonder what it would be like in a seaway to step on that brass with oily sneakers and crash down with only my pocket flask between me and the deck. Or I'd see wing hatches over a motor compartment hinged from the center and artfully provided with a water groove to collect spray as it seeped through the hinges and deposit it on the magneto. Such lapses in good taste trouble the soul of anyone who has depended on the full possession of his faculties and the perfect performance of his motor to get him in out of the smother.

Generally, though, no one could be other than impressed by the excellence of the craft gracing this year's exhibition. A newcomer at the Palace, Burger of Manitowoc, Wis., had a bridge-deck 36-footer designed by Mower that looked capable of performing well in the chop of the Great Lakes or the longer roll of the open sea; and the Consolidated 36½-foot Florida fishing boat was something that would overcome most anybody's disinclination to spend a winter in the Peninsular State. The 50-foot 35-miler shown by Luders—the largest boat on the floor—was typical of the fine work of the Stamford yard; and the exhibit of the Elco Company showed refinements both in type and in detail that kept the Cruisettes and the other little sisters of the British M. L.'s well in the foreground of popularity. Among the runabouts, Rainbow, owned by Harry Greening, and winner of the Fisher Trophy, attracted special attention both for her record and for the exceptional quality of her design and fittings, but the many fine speed boats of stock model had their hosts of admirers.

Every year our preferences change a little and we become more exacting in our definition of the perfect craft. At the last show I wanted nothing better than a swift runabout with which to cruise single-handed down the Maine coast. Through a piece of the good luck that is apportioned to all faithful worshipers of Neptune I had my wish and made the cruise, proceeding blithely without sail, oars or dinghy to tide me over any temporary aberration of the motor. But I think I may truthfully say that the cruise taught me something. Maybe I'm growing old, and perhaps I'm becoming reactionary at a time when the marine motor is attaining the peak of its perfection—but if I made a long cruise again, single-handed or otherwise, I'd like to have a patch of canvas between me and the hereafter.

No one ever thought to teach me how to design a hull that was neither motor boat nor sailboat but a perfect combination of the two; and I haven't yet considered that I had the inspiration to build untutored the super-auxiliary. But if in some motor boat show of the future an exhibitor will display a craft that is a little less than a sailboat, a little less than a motor boat, and by its very limitations a little more than a boat of either class; a boat, that is, that neither subordinates power to sail nor sail to power but effects a perfect coordination between the two—well, this is a long sentence, but if such a creation ever appears on the floor of the Palace I'll say that my present ideal has been attained, and I'll stand by with a boathook to give the salesmen elbow room for writing down orders.

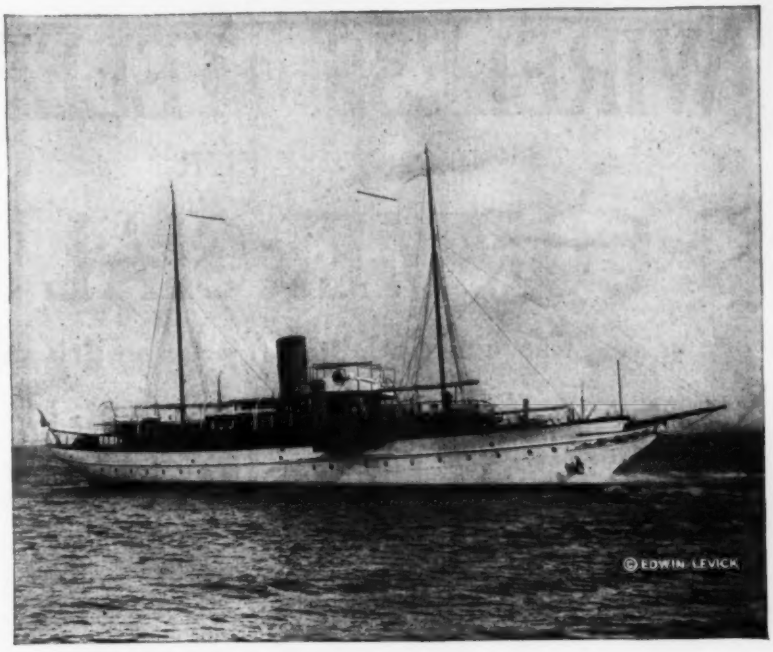
As usual, all the old reliables were present with marine motors of a sort that are built to run. No one who passed the Hall Scott booth this year referred to it as an aviation motor, the name which this motor has made for itself during the past year, and Hall Scott records of 1920 have so impressed everyone that there is no doubt in the mind of anyone as to its suitability for marine service.

The Sterling booth looked finer than ever before and those who studied the models on exhibition were impressed with the excellency of the Sterling design and finish for the "Finest Boats That Float."

The Dodge Sales and Engineering Co., a newcomer at the

(*Continued on page* 76)

Advertising Index will be found on page 118

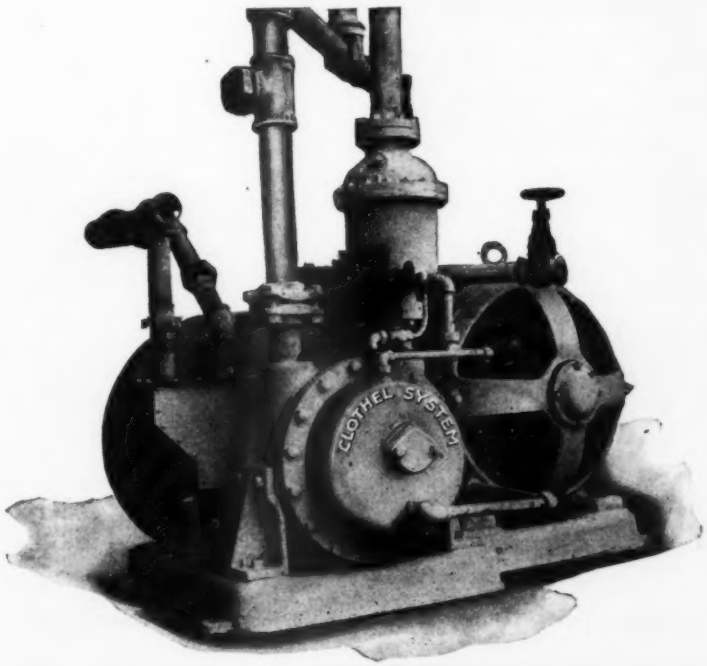


S. S. Sialia, owned by Henry Ford. Designed by Henry J. Gielow, New York City. Built by Pusey & Jones, Wilmington, Del. Equipped with Clothel Refrigeration.

America's Finest Private Yachts Have Clothel Refrigeration

CAN you imagine men like Henry Ford, Cyrus H. K. Curtis, Harry Payne Whitney, W. K. Vanderbilt and other able business men fitting out their fine cruising yachts with any but the very best equipment?

When men like that are unanimous in their choice of Clothel Refrigeration—when each succeeding boat they build is so equipped—there is ample reason for believing the Clothel System to have more than ordinary merit.



An investigation will show you how reliable Clothel Refrigeration is under all conditions; how effectively it cools; how simple to operate; how safe; how efficient in every way.

The Clothel booklet will be sent to you upon request.

THE CLOTHEL REFRIGERATING CO.

61 Broadway, New York City
17 St. John St., Montreal, Canada

REPRESENTATIVES

Pacific Coast: Ford & Geirrine, San Francisco.
Europe: Captain Paul Koster, Paris.
France: Sautier-Harle Co., Paris.
Scandinavia and Finland: Sunde & Co., Christiania.
China: J. P. Sartz, Shanghai.

WIRELESS TELEPHONES

FOR

COMMERCIAL USE

Especially adapted for use on Private Yachts

EFFICIENT **RELIABLE**

So simple they can be operated by anyone able to talk.

Will not get out of order; require practically no attention.

Maximum service with minimum "upkeep" expense.

Little in size, but BIG in the service they give.

COMPACT **SERVICEABLE**

NATIONAL RADIO COMPANY'S WIRELESS TELEPHONE was the first to be used successfully for a commercial wireless telephone message; this was between the Wanamaker Stores in New York and Philadelphia.

The first wireless telephone message received on an aeroplane was transmitted by this apparatus at Monterey, California.

In both the above cases the transmitted words were clear and distinct, but later improvements have so increased the volume and tone of the voice waves in the present instrument that perfect reproduction of sound is secured.

Fully protected by patents in the U. S. and 29 foreign countries.

SOLD UNDER POSITIVE GUARANTEE

CALL, WRITE, OR WIRE

DEPT. MB.

NATIONAL RADIO COMPANY

719 Pacific Building Cable address "Natradio," San Francisco **San Francisco, Cal.**

Advertising Index will be found on page 118

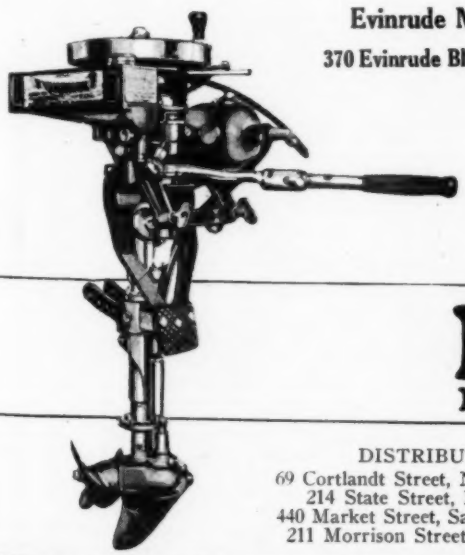
Through Venetian Canals

Through the storied canals of Venice, winding beneath *palazzo* balconies, native gondolas are swiftly overtaken by more modern craft driven by Evinrude Motors.

And even as the picturesque gondolier is being displaced by this new-day method of water travel, so the tiresome work of oar and paddle is being abandoned by sport-lovers of every land. For the Evinrude, quickly attached to any rowboat or canoe, is an *international institution.*

Special features of the Evinrude are Built-in-flywheel Magneto and Automatic Reverse.

Your hardware or sporting goods dealer will show you the Evinrude. Or send for catalog.



Evinrude Motor Company
370 Evinrude Bldg., Milwaukee, Wis.

EVINRUDE
DETACHABLE MOTOR FOR WATERCRAFT

DISTRIBUTORS:
69 Cortlandt Street, New York, N. Y.
214 State Street, Boston, Mass.
440 Market Street, San Francisco, Cal.
211 Morrison Street, Portland, Ore.

Michigan Marine Motor

4 H. P. Single Cylinder 4 Cycle

Port View

Piston, connecting rod and valves replaceable with Ford engine parts—obtainable everywhere.

The Michigan is a sturdy reliable marine motor that will give genuine satisfaction in Tenders, Launches, Fishing Boats, Work Boats and Auxiliaries.

Highest type of four cycle design. Valve-in-head construction gives real economy and power.

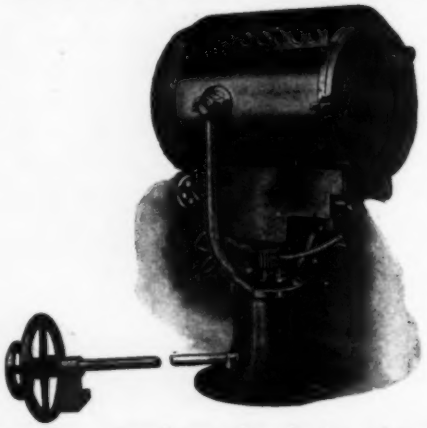
Counter-balanced crank shaft, offset cylinder and heated intake give smooth, quiet operation, free from vibration.

Write today for complete description and prices

Michigan Marine Motor Corporation

1429 East Jefferson Ave. Detroit, Mich.

CARLISLE & FINCH ELECTRIC SEARCHLIGHTS



have for years been the choice of careful motor boat and ship owners. Made in all diameters, from 7" to 60". Used on every size craft from motor boat and yacht to battleship and ocean liner.

The Carlisle & Finch catalog of searchlights will be mailed to any boat owner, builder and marine architect on request

THE CARLISLE & FINCH COMPANY

261 East Clifton Ave. Cincinnati, Ohio

Progress in Nineteen Twenty-one Foretold

(*Continued from page 72*)

New York Show, had a line of heavy oil motors which kept a crowd around their exhibition space at all times. The striking appearance of Fay & Bowen motors as usual was apparent upon entering the exhibition hall. Their complete line was on exhibition in addition to several of the well-known Fay & Bowen runabouts which are so popular that the manufacturers have trouble to keep their production up to the demand.

William Gibb was in charge of the Frisbie exhibit. One of the features which could not help being noticed in connection with those who came up to talk shop was that there were no "kicks." Every Frisbie user or owner had nothing but praise and boosts for the "Friendly Motor," and Mr. Gibbs reported that the sales of parts and replacements were slow.

Chief Designer Frost, of the J. V. B. Engine Co., was about the busiest as well as the happiest man at the show. His new reverse gear probably came in for the greatest amount of attention of anything on the main floor of the Palace. He had his gear mounted up with an electric motor in such a way that its efficiency, ease of operation and practicability were firmly impressed upon everyone present. Mr. Frost also reported that sales of his new motor and prospects for buyers were never better.

Jack Farr was about the proudest man in New York when he was explaining many features of his new 40 h.p. Kermath, and he had to explain them a good many times in the course of the week, too. On Wednesday morning John L. Hacker, the famous designer of Detroit, arrived in town and hot-footed it over to Jack Farr's Kermath stall to tell him about the performances of his new 21-footer powered with a 20 h.p. Kermath which John has now standardized and started production on a basis which promises to outdo anything which the John L. Hacker Boat Co. has done in the past—and they have made history on many past occasions, too. This 21-footer showed speeds of better than 18 miles an hour in the Detroit river during Show Week.

Ed Stone, of the Knox Motor Co. of Springfield, Mass., was all pepped up and enthused over the interest which everyone at the Show showed in his new 20 h.p. 4-cycle Knox. We don't blame him either for being in the condition which we found him every time we called at his booth. This new Knox is something absolutely new in the marine field and is built not only to sell at a price easily within the reach of everyone but built to run and drive either the heaviest cruiser or lightest runabout as well. The Knox Company has 100 of their new motors going through their shops for March delivery and Mr. Stone thought it well to wire his factory to increase this number because the interest shown was so great.

The Peerless Marine Motor Co. was at the Show with something also absolutely new in our field. This was a motor of the same size, proportions and power as the famous Liberty motor but built as a strictly marine motor. It has a 5 x 7" bore and stroke and will be built in 4-, 6-, and 12-cylinder sizes. Ed Grimm, who designed the motor, was in attendance and pointed out its many features and explained why the new models are to be so much better than anything ever before attempted.

But I'm in danger of winding up as I started—a little off course. The recent Show was the most interesting, the biggest, and the best attended that has ever honored New York with its presence. It promises truthfully that the coming season will be the most successful in the history of the marine engine.

A New England Wild Cat

One of the most attractive, as well as interesting, of the many fine runabouts in the vicinity of Boston is Wild Cat, a remarkable new craft recently turned out by the E. G. Black Yacht Yards of Marblehead, Mass., from designs of John L. Hacker for W. T. Mann, of Washington, D. C., who summers at Magnolia, Mass.

Wild Cat, which is 30 feet overall and 6 feet 6 inches beam, is powered with a six-cylinder 200 h.p. Hall-Scott marine engine which drives her better than thirty-eight miles an hour, making her one of the fastest, if not the fastest, runabouts in New England waters.

Planked with and finished throughout in selected mahogany, Wild Cat is indeed a really beautiful craft and one which would attract attention in any company. The high grade of the workmanship and the carefully worked out details have called forth much praise from visiting yachtsmen who have had the opportunity of inspecting the craft and watching it perform.

Although there were no scheduled racing events held in the vicinity of her home port, Wild Cat managed to have numerous brushes with visiting craft which were willing to try their speed, and had no trouble in showing a clean pair of heels to all.

Advertising Index will be found on page 118

DISAPPEARING PROPELLER BOAT

First in favor at the New York Motor Boat Show

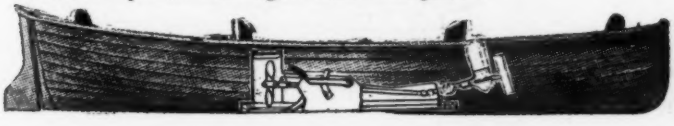
More Disappearing Propeller Boats were actually sold at the New York Motor Boat Show last month than any other boat exhibited. More were sold, we believe, than any other boat ever exhibited at any past show.

"Love at first sight" is the rule when a real boat fan inspects this boat. When he understands the principle, realizes its simplicity, sees the roominess of the boat and notes the excellence of the workmanship and finish, the boat simply sells itself.

This is the ideal motor boat for inland waterways:—lakes, rivers, shallow bays and shallow beaches—wherever there is water enough to float a rowboat. It is the safest and most seaworthy motor boat of its size ever built, whether used in shallow or deep water.

The moment the protecting skeg comes in contact with a submerged rock, log, sand bar, etc., the propeller automatically moves up into the well (see illustration below) and the engine throttles down. When you beach the boat, you need never worry about the propeller.

The propeller amidships stabilizes the boat like a centerboard. The engine being completely enclosed, keeps the boat clean. An ideal boat to dive from when bathing; it won't tip and endanger other occupants.



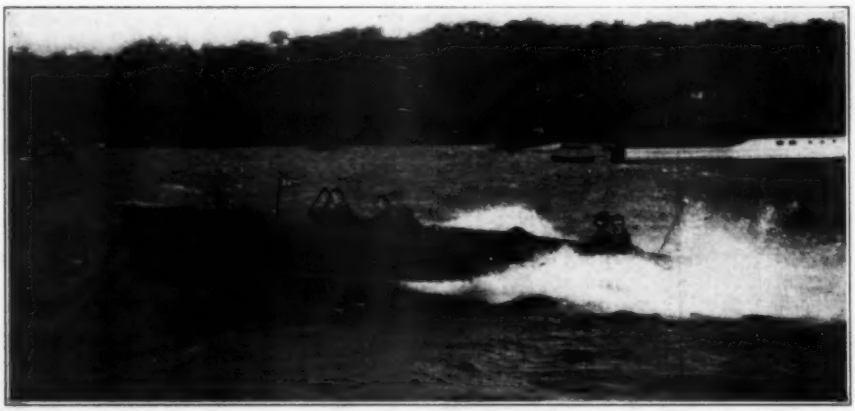
Write today for catalog and prices.
You'll be surprised at the low cost and economical maintenance of this motor boat.

DISAPPEARING PROPELLER BOAT COMPANY
975 Woodward Avenue, Detroit, Michigan
North Tonawanda, N. Y. **92 King Street W., Toronto, Canada**

Hacker-Craft

HIGH CLASS MOTOR BOATS

HACKER 28 FOOT SPECIAL



YOUR DREAM BOAT FOR 1921. Picture yourself, and three or four friends, skipping over the waves at a speed of over 30 miles, in perfect dryness, and away from all noise and dirt. Then with room for four more passengers in the aft cockpit. This can be fully realized in this latest creation of John L. Hacker, N. A. It is powered with a 125 H.P. Hall Scott Motor, and is delivered just as complete as you would expect to receive a high class Car. This outfit will be the most popular one this coming season, and will market at a popular price. Production will be limited. ***Send for particulars at once.***

HACKER 29 FOOT SPECIAL

Pronounced by Experts, to be the most successful Gentleman's Runabout of its size in America. Powered with the four and six cylindered Hall Scott motors. Guaranteed speeds not less than 32 and 36 miles per hour.

We have two of these ready for Florida delivery. Better get busy.

HACKER 21 FOOT STANDARD

The biggest little boat ever built. First class in every respect. Sold complete only. Powered regularly with a 16 H.P. KERMATH, which drives the outfit at a speed of 18 miles. It will carry five or six passengers comfortably, and is everything that can be expected from a boat of that size, equal to most 25 footers. Production will allow this outfit to be sold at a popular price. Send for particulars.

HACKER STOCK PLANS:

Special Plans Will be Made to Your Order by John L. Hacker—N. A., for Any High Class Job up to 60 Foot. Please Write Your Requirement.

HACKER BOAT CO.

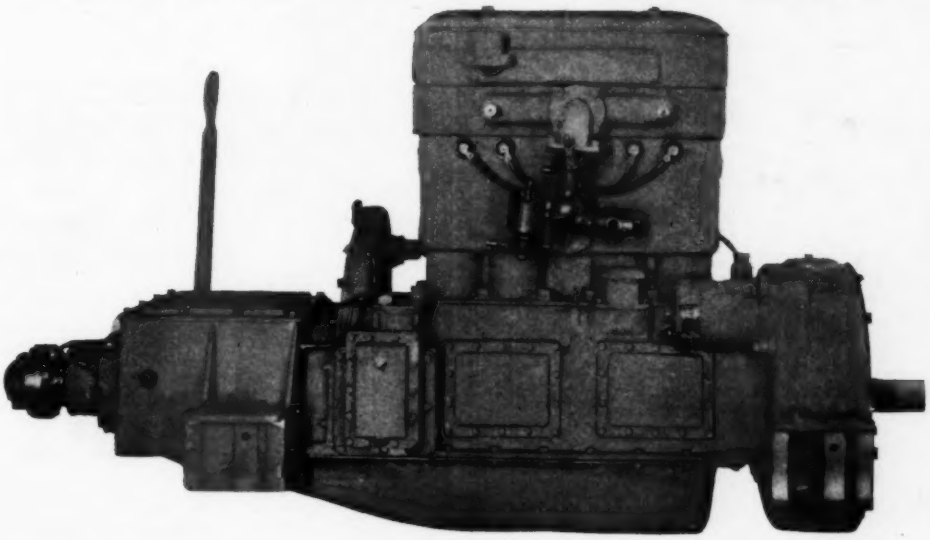
Detroit and Mt. Clemens, Mich. **Office: 323 Crane Ave., Detroit**

Advertising Index will be found on page 118

Knox

"Steady Service"

The Hit of the Motor Boat Show



The New Knox 20 H.P. Marine Motor

Whether or not the average boat enthusiast knows a good motor when he sees it—whether or not the Knox 20 H.P. motor meets the popular demand —was amply demonstrated in the affirmative by its cordial reception at the Motor Boat Show.

The latest and best principles of automotive engineering practice are embodied in this Knox type. It is a valve-in-head motor, with removable cylinder head carrying all valve parts. The design attains an unusual degree of efficiency in power and fuel economy, and furthermore, every provision has been made for strength, durability and freedom from petty annoyances. The equipment is unusually complete.

These brief specifications will show that the Knox merits further investigation.

Four cylinders
Bore 3½", Stroke 5"
Valves in cylinder head
Removable cylinder head
Valve mechanism enclosed
Single one-piece camshaft
Heated intake manifold
Water cooled exhaust manifold
Large drop-forged crank shaft
Noiseless timing gears of special design
Separate circulating and bilge pumps
Furnished with or without electric starter
High Tension magneto ignition
Reciprocating parts carefully balanced
Full pressure internal lubrication

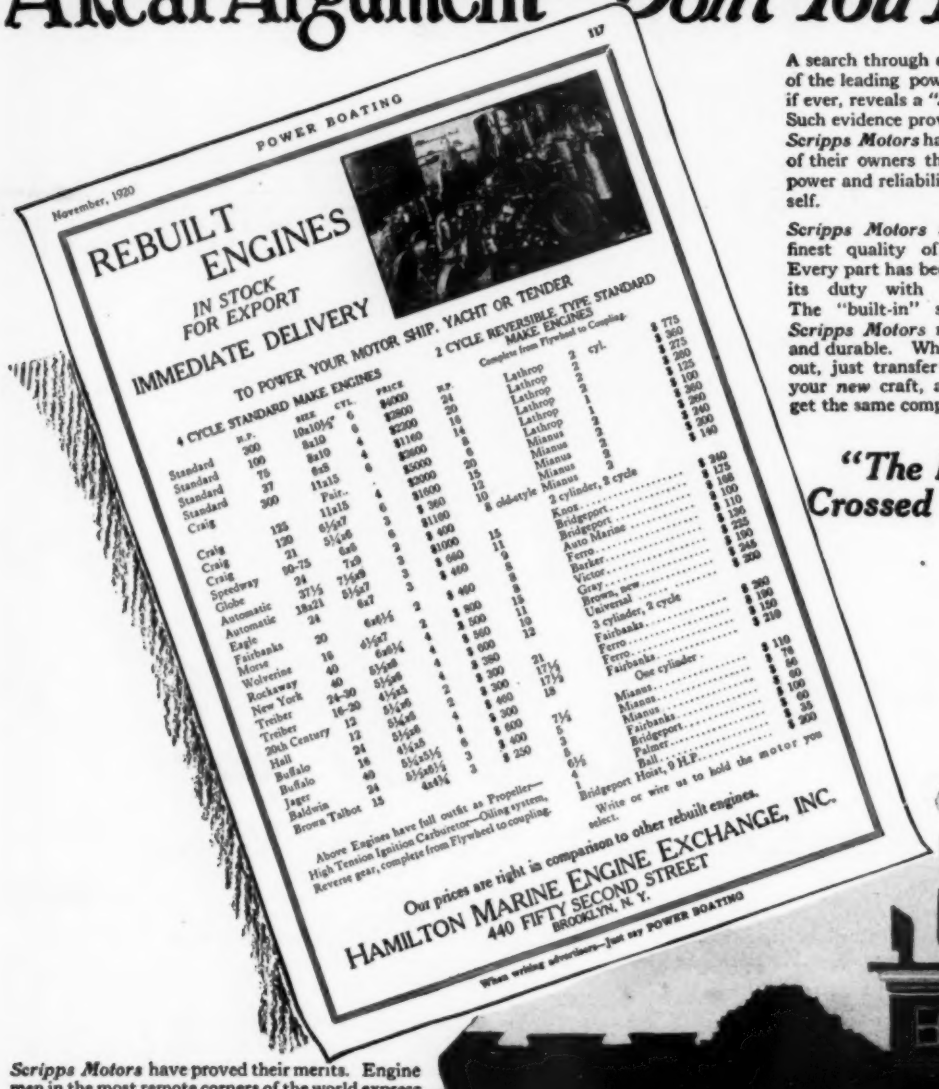
LET US SEND YOU FULL DETAILS AND PRICES

KNOX MOTORS ASSOCIATES
SPRINGFIELD, MASSACHUSETTS, U. S. A.

Made in New England at Springfield, Massachusetts, by Knox Motors Company, also manufacturers of Truck, Tractor, Utility and Passenger Car Engines

Motor Boating

A Real Argument—Don't You Think?


117
POWER BOATING
November, 1920
REBUILT ENGINES
IN STOCK FOR EXPORT
IMMEDIATE DELIVERY
TO POWER YOUR MOTOR SHIP, YACHT OR TENDER
4 CYCLE STANDARD MAKE ENGINES
2 CYCLE REVERSIBLE TYPE STANDARD MAKE ENGINES
Complete from Flywheel to Coupling.
Above Engines have full outfit as Propeller—High Tension Ignition Carburetor—Oiling system, Reverse gear, complete from Flywheel to coupling.
Our prices are right in comparison to other rebuilt engines.
HAMILTON MARINE ENGINE EXCHANGE, INC.
440 FIFTY SECOND STREET
BROOKLYN, N. Y.
When writing advertisers—Just say POWER BOATING

A search through the "For Sale" columns of the leading power boat papers, seldom if ever, reveals a *"Scripps Motor"* for sale. Such evidence proves, beyond a doubt, that *Scripps Motors* have made life-time friends of their owners through great endurance, power and reliability. Prove it for yourself.

Scripps Motors are constructed of the finest quality of materials obtainable. Every part has been perfected to perform its duty with power and efficiency. The "built-in" service and quality of *Scripps Motors* makes them dependable and durable. When your old boat wears out, just transfer your *Scripps Motor* to your *new* craft, and you will continue to get the same complete motor satisfaction.

"The Motor That Crossed The Atlantic"

Scripps Motors have proved their merits. Engine men in the most remote corners of the world express their confidence and appreciation of them after having given them the most severe tests in their native waters.

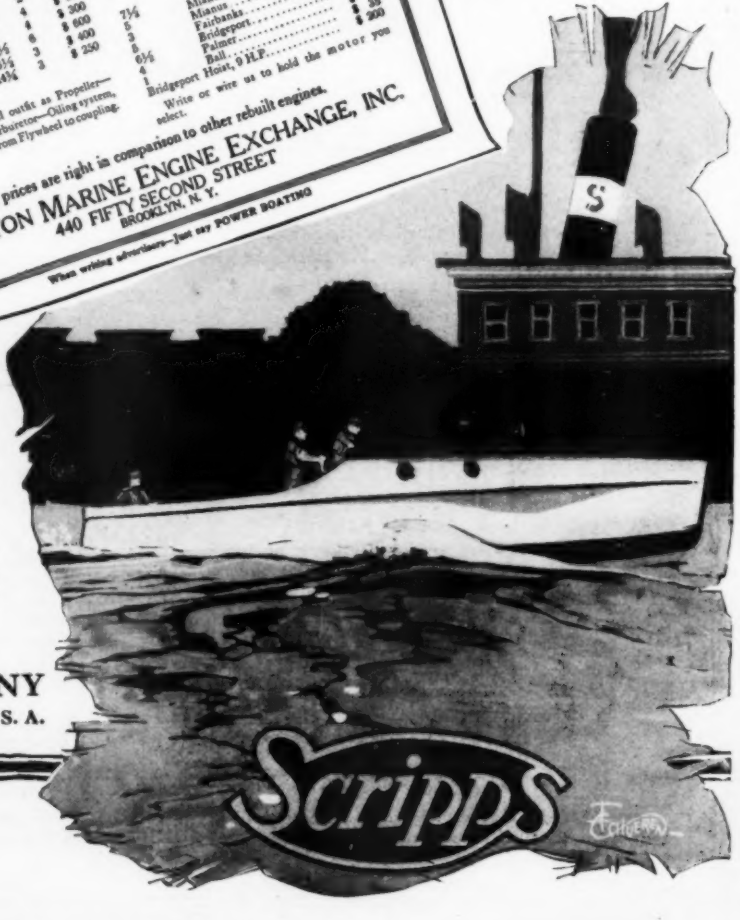
A motor operating thousands of miles from a base of supplies must be free from dependency upon the factory for frequent repair service and replacement of parts. *Scripps Motors* stand this foreign water test.

The *Scripps Line* includes marine power plants from 10 to 125 HP—all four cycle engines in two, four and six cylinders, using gasoline, kerosene, or distillate for fuel. There's a "Scripps" for your boat.

Write today for literature.

SCRIPPS MOTOR COMPANY

631 Lincoln Avenue Detroit, Michigan, U. S. A.



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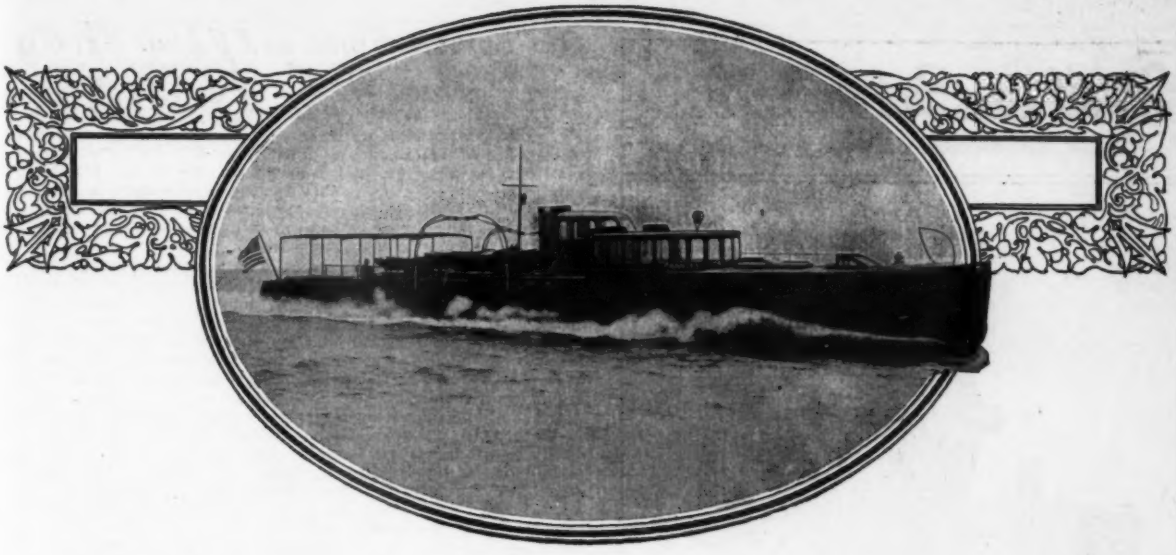


FRANCES

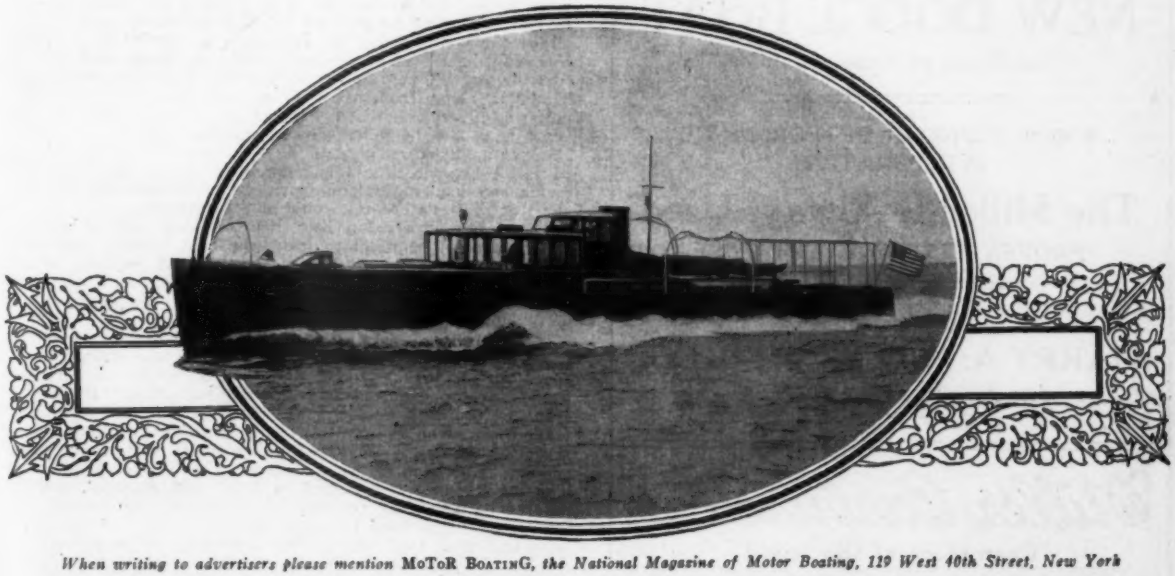
104 Feet. 31.3 Miles an Hour. Built for the late John F. Dodge

The largest, finest and fastest express cruiser ever developed; a boat with a batten seam, double planked hull displacing ninety thousand pounds yet turning up to an official speed of 31.3 miles an hour. Powered with gasoline engines, ready for instant operation and employing a minimum crew, this type of super express cruiser combining seaworthiness, comfort, luxury and a fast turn of speed will find a wide field of usefulness for both commuting service and extended cruising.

Great Lakes Boat Building Corporation

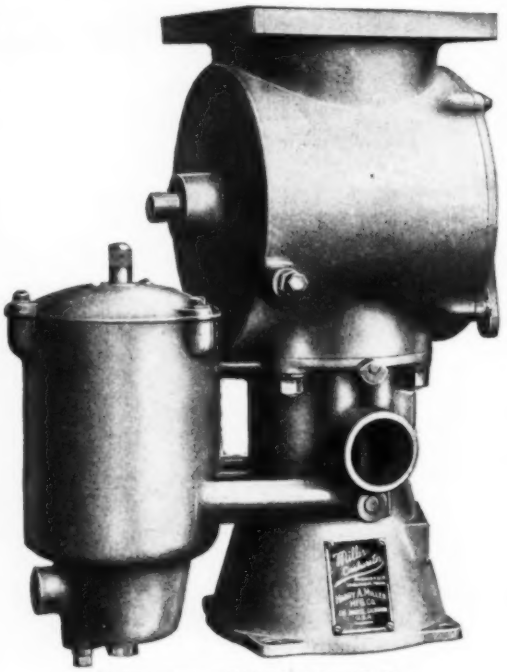
Milwaukee, Wisconsin

Largest Builders of Express Cruisers in America



Miller Carburetors

Champions of the World



Miller Type "H" Model—4" Size

Incorporating the Miller
"Two-Stage" Atomization Principle
The Final Word in Carburetion

Selected by Master Builders

As power equipment for the

NEW DODGE BOAT

"The Finest of Express Cruisers"

WHEN SUPREME PERFORMANCE
IS IMPERATIVE

The Miller Is Always Used

PROVEN BEST IN EVERY TEST

Made by

HARRY A. MILLER MFG. CO.

Los Angeles, Calif., U. S. A.

Miller Carburetors

Champions of the World

Our Largest, Finest and Fastest Express Cruiser

(*Continued from page* 15)

wave-collecting type required less power at all speeds than the straight *V* section or the modified *V* section. This was most gratifying because we had found from the tests of a large number of express cruisers that the wave-collecing type handles perfectly in a seaway, whereas the straight *V* and the modified *V* would pound; the wave-collecting lines acting as a cushion, letting the boat down easy in the water.

The analysis of the engineering data indicated that it would require 1,600 brake horsepower to obtain a speed of 30 miles an hour with a displacement of 47 tons; a very liberal coefficient being used in arriving at the effective horsepower that would be available, as reflected on the curves taken from the tests of the models. Of course, the frictional and total resistance were reduced to a salt water basis in figuring the effective horsepower required.

It being determined that 1,600 horsepower would be necessary to drive a boat approximately 104 feet 30 miles an hour, the question presented itself as to what power plants could be obtained to accomplish this purpose. A survey of the market developed the fact that the 400-horsepower Murray & Tregurtha units were about the only high-speed gasoline engines that could be purchased, and that it would require four of these engines to give the aggregate horsepower required. A study of the mechanical installation was made, with the idea of either using twin-screw drives with two engines in tandem on each shaft, or triple-screw drives, the two center engines in tandem and the wing engines operating separately. In considering the tandem installation past experience had clearly shown that it would be inadvisable to attempt to connect the power plants directly together and place the total horsepower of both engines on the crank-shaft of the after engine, and that consequently it would be necessary to connect both power plants to a herringbone gear with a 1:1 ratio, thus permitting the driving shaft to pass under the base of the after engine. In order to obtain the best mechanical results it was obvious that in the tandem installation the engines should be connected rigidly through the herringbone gear without attempting to utilize any reverse gears.

An examination of the operating and maneuvering problem showed that the twin-screw tandem installation on each shaft was not all that could be desired. It clearly developed that the best installation would be one that would cover the use of two wing engines on independent shafts for maneuvering purposes and moderate speeds, and two engines in tandem on the center shaft for the maximum speed.

The power curve reflected the fact that with the two wing engines in operation and the center propeller thrown out (by means of a straight jaw clutch), the cruiser would operate at a speed of approximately 22-23 miles an hour, an ideal cruising speed, and that with the two center engines thrown in the speed would go up to 30 miles an hour.

The results of the model test and examination of the power plants available and the character of installation available was presented to Mr. Dodge in detail. After going over the matter thoroughly he pronounced himself entirely satisfied with the investigation and authorized us to proceed to build the boat. In this connection he pointed out that he would like to have all of the controls for the four engines carried to a central operating board with air-clutch controls, spark and throttle controls and all instruments so that the Chief Engineer could handle the boat from one position; and he also expressed a preference for underwater exhaust in order to quiet the exhaust from the 1,600-horsepower gasoline motors.

In the arrangement plan of the 104-footer Mr. Dodge allowed us full leeway, with the understanding that a large enclosed dining and lounging saloon would be made available forward, and that three staterooms would be provided aft.

The design involved a boat 104 feet long with a beam of 15′ 6″, a draft sufficient to make the boat entirely seaworthy, the installation of 1,600 horsepower gasoline engines, with a total weight for accessories of 24,000 pounds, and a maximum displacement not to exceed 94,000 pounds; the design to be wave-collecting lines.

It was clearly evident that a hull 104 feet long would be called upon to sustain very severe stresses and strains at the speed of 30 miles an hour, and that therefore the structure would have to be made practically indestructible. It was decided to utilize a double-plank, batten seam hull with sawn frames spaced on 40″ centers, steam-bent frames running from sheer to keel in a continuous member on 10″ center, and batten running from stem to stern to back up each outer plank seam. The inner skin was specified as cedar laid diagonal, and the outer skin mahogany running fore and aft, with heavy drilling between, the total planking finished to be 1¼″ below the waterline and 1⅛″ above the waterline. The strength of the boat is obviously in the steam bent, batten seam hull with

(*Continued on page* 86)

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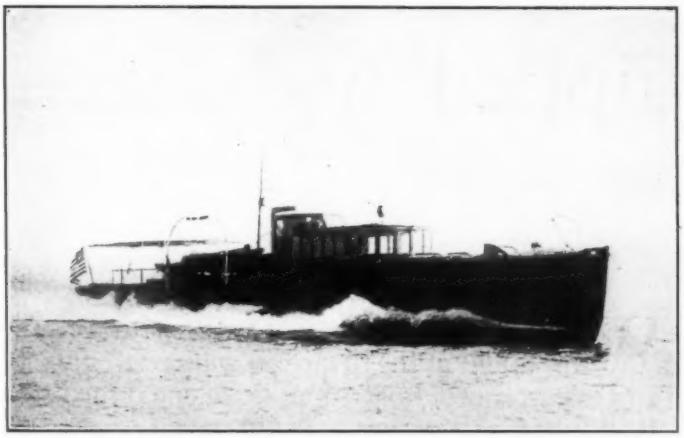
MARINE GEARS

"FRANCES", the largest and fastest express cruiser ever built. Actual speed 31 miles per hour in trials

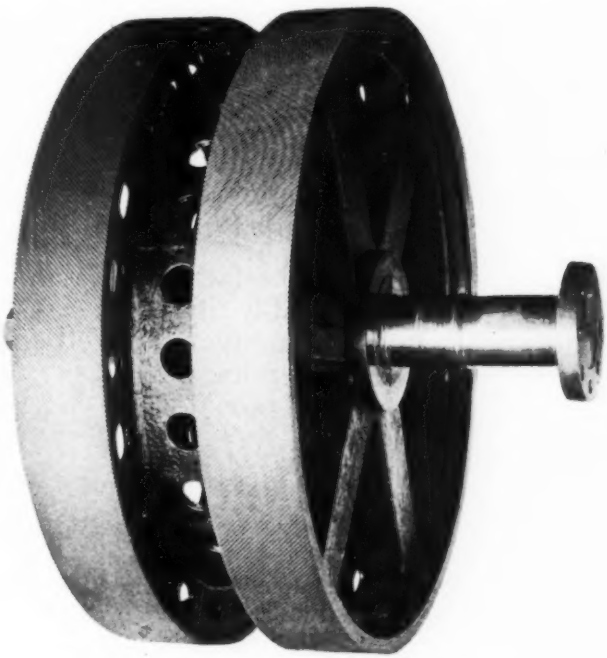


"FRANCES" is equipped with Falk Gears between the engine and propeller shaft, 900 H.P., 1,000 to 1,500 revolutions

Built by Great Lakes Boat Building Corporation for estate of John F. Dodge

FALK GEARS

Built for compound turbines — single or double reduction or for Diesel type Marine Engines single reduction.



Gear for Single Reduction Unit for Twin Screw Passenger Ship — 6,000 Shaft Horse Power, 1,800 to 125 Revolutions.

Consult Our Engineering Department

FALK COMPANY HAS FURNISHED MARINE GEAR UNITS AGGREGATING OVER 3,000,000 SHAFT HORSE POWER

THE FALK COMPANY

MILWAUKEE, WIS., U. S. A.

BRANCH OFFICES: EASTERN COAST, M. P. Fillingham, 50 Church Street, New York City — WESTERN COAST, F. W. Grimwood, Rialto Building, San Francisco, Cal.

"FRANCES" and her four Murray & Tregurtha Engines are equipped with

WHEN the late John F. Dodge with unlimited engineering talent at his disposal, wanted to have built the finest and fastest motor boat afloat he selected the Great Lakes Boat Building Corporation to build it.

When the Great Lakes Boat Building Corporation, with all their knowledge and experience in marine engine service, wanted the finest power plants procurable for Mr. Dodge's boat they selected Murray & Tregurtha engines.

When the Murray & Tregurtha Corporation, with every facility for making accurate comparative tests, wanted the best spark plugs they could buy for their high speed engines, they selected Rajah Spark Plugs.

We are proud of the fact that Rajah Spark Plugs are selected almost invariably in such cases where nothing counts but matchless quality and a well established reputation for uninterrupted service.

The New Waterproof Rajah Plug. Designed especially for motor boats. Waterproof, shockproof and breakproof. $1.50, all threads.

Waterproof Rajah Plug . $1.50
Giant Rajah Plug 1.25
Standard Rajah Plug . . . 1.00

The Rajah Thrust Clip, Hook Clip, Short Clip and Primary are furnished with ferrules to fit any size cable. Look for the trademark on every clip.

Rajah Spark Plugs are sold by leading dealers everywhere

Advertising Index will be found on page 118

RAJAH SPARK PLUGS

YOU don't have to own the fastest boat or the finest engine to be warranted in using Rajah Spark Plugs. They cost no more than ordinary plugs. In fact they cost far less in the end.

Any loyal member of the boating fraternity is entitled to troubleproof spark plug service. Any engine that will run at all deserves good ignition equipment.

Neither wealth, experience nor technical knowledge is required if you exercise good judgment in the selection of your plugs and benefit by the experience of those who have demonstrated the superiority of Rajah Spark Plugs in every sort of engineering test and every sort of boat service.

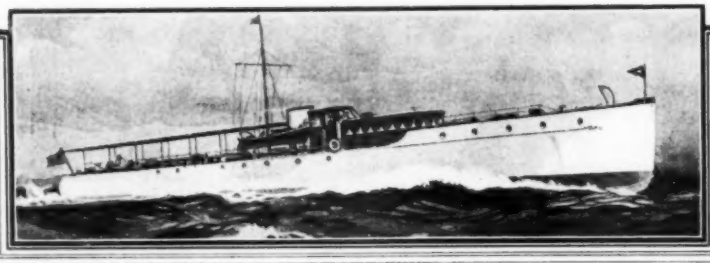
In no other way can you buy so much genuine satisfaction for a few dollars as when you purchase a *full set* of Rajah Plugs for your engine.

Rajah Spark Plugs are made in all sizes and types especially suited for different types of engines. Tell us the name of your engine and we will gladly recommend the proper type of spark plug.

If your dealer does not sell Rajah Plugs, send us his name and we will see that you are supplied, postpaid.

The Giant Rajah Plug $1.25, all threads

Manufactured by Rajah Auto-Supply Co., Bloomfield, N. J., U. S. A.



Profile view of Mrs. John F. Dodge's Express Cruiser, the largest and fastest afloat.

View of aluminum castings for crank cases and engine bases made at the Harley plant at Springfield, Mass.

THEY WANTED THE BEST—

When the Murray & Tregurtha Corp. were commissioned to build the gasoline motor for Mrs. John F. Dodge's Express Cruiser, the largest and fastest V-bottom pleasure yacht afloat, they realized the vital importance of securing the finest aluminum castings. After long and extensive investigations and experimental work in the casting field thruout the country, they finally awarded the contract for all castings to

The HARLEY COMPANY of SPRINGFIELD, MASS.

"Where Quality is More Than a Word"

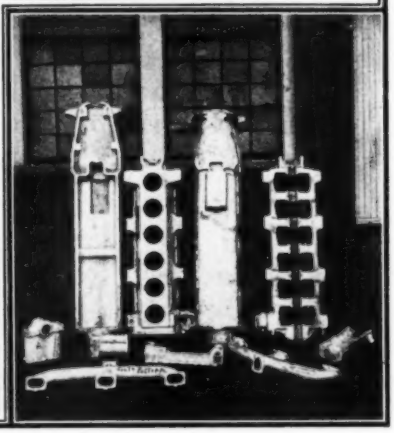
The castings requirements of the Murray & Tregurtha Corp. were severely exacting—because it was imperative that only the finest castings obtainable would suffice in the making of the largest and most efficient gasoline motors ever built along conventional lines.

The Dodge Cruiser is symbolic of the highest degree of quality, in fact it is representative of super-quality. To this splendid achievement, The Harley Company has contributed its quality products.

For years The Harley Company has been recognized as the makers of the finest drop forgings and castings—To become familiar with Harley Quality is to become a Harley booster—let's get acquainted.

THE HARLEY COMPANY

Page Boulevard, Springfield, Mass.



THE deck hardware, wheel, spark-and-throttle control, portlights and special fittings for the *Dodge Cruiser* were furnished by

Hubbard H. Erickson & Co.

3037 to 3045 N. Western Ave. Chicago

ERICKSON SEARCHLIGHT,

the powerful 18-inch reflector searchlight used on cruisers of class all over the world, exemplifies the quality of our manufactures.

Our Largest, Finest and Fastest Express Cruiser

(*Continued from page* 82)

its oversize stress members and the steel hogging girder running from stem to transom on each side. The engine beds were carried three-fourths of the length of the boat to act as sister keelsons.

The fastenings, of course, were worked out in copper and bronze, as were all the fittings.

Every modern convenience and comfort were incorporated, including electric light plant for furnishing lights and ventilation, refrigerating plant, hot water system, hot-air heating system, intercommunicating telephones, annunciators, Wilton carpets, box spring upholstery and the very finest plumbing fixtures.

The arrangement plan worked out with officers' and crew's quarters forward, together with galley, followed by enclosed dining and lounging saloon, engine compartment, three staterooms and a large cockpit.

This 104-footer is the largest, finest and fastest express cruiser that has ever been developed, and will serve as a pioneer for a great many other boats of like character.

Novel Mooring for Small Boats

(*Continued from page* 32)

down within reach of the boat at all stages of the tide.

When returning to the mooring, the bow was run against the float and the clutch held in until the stern line, which had been grasped while entering, was made fast; then the bow line, left lying on the float, was slipped over the post, the clutch released and all was secure. To land, one pulled on the line until the bow touched the float, then jumped off. When a party was to be taken on board, it was only necessary to run around to the other side of the float, put fenders out and lie there alongside.

It is realized that few boat owners would be able to take advantage of such a mooring, yet many of them might be able to rig up a modified arrangement which would do away with some of the inconveniences of the tender.

H. H. P., Oakland, Cal.

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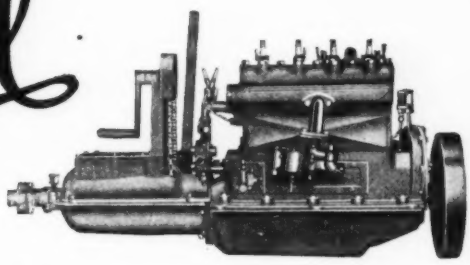
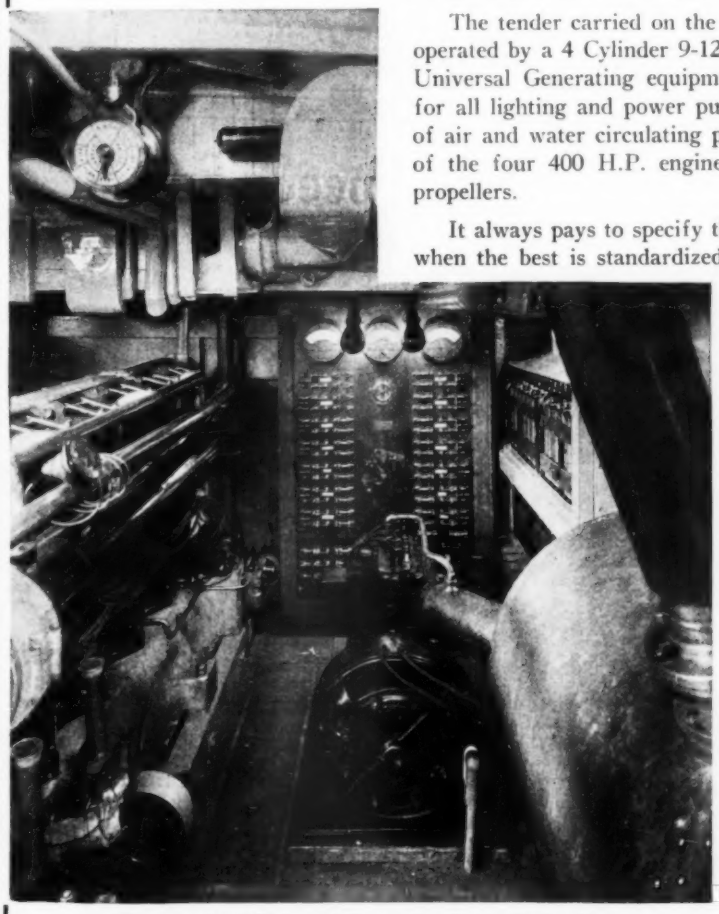
The Universal



4 Cylinder Motor
4 K. W. Generating Set
and The Dodge Boat

THE owner and designers of the Dodge boat determined that nothing but the very best material and equipment obtainable should enter into its construction.

Investigation and experimental tests proved that Universal equipment met these exacting requirements in every respect and accordingly Universal equipment was specified wherever capacity limitations permitted its use.



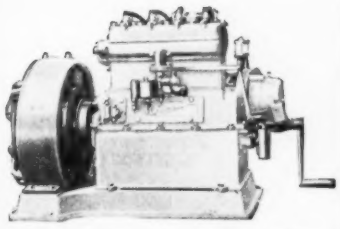
Photograph of Universal Generating Set in Dodge Boat

The tender carried on the forward deck of the Dodge is operated by a 4 Cylinder 9-12 Universal Marine Motor, and Universal Generating equipment furnishes electrical energy for all lighting and power purposes, including the operation of air and water circulating pumps, and the starting motors of the four 400 H.P. engines that furnish power for the propellers.

It always pays to specify the best regardless of price, but when the best is standardized like Universal, and costs less than inferior special-design equipment it is folly to specify anything but the best.

Write for bulletin 29 on marine engines or No. 30 on Generating Sets. They are chuck full of valuable boating and lighting data.

UNIVERSAL MOTOR CO.
Oshkosh Wis.



NOT CONNECTED WITH ANY OTHER COMPANY USING THE NAME "UNIVERSAL".

Oakley Valve of Monel Metal, after 14 months' steady service

OAKLEY VALVES

for Internal Combustion Engines Made of Monel Metal

Manufactured under the Oakley Patent

The problem of securing durable and trouble proof valves for internal combustion engines is solved at last. The solution is to use Oakley Patent Valves.

These valves have been thoroughly tested by automotive engineers, by the Bureau of Standards of America, and by motor owners during the past two years, so that their characteristics are fully demonstrated.

They are heat proof and carbon proof, non-corrosive and cannot warp or leak. They withstand heat which would destroy any other metal. Carbon has no effect on them. Valve grinding is practically done away with.

Oakley Valves are Standard Equipment on Van Blerck and Murray & Tregurtha (High Speed) Engines.

Engine Manufacturers: Write today for full details and samples

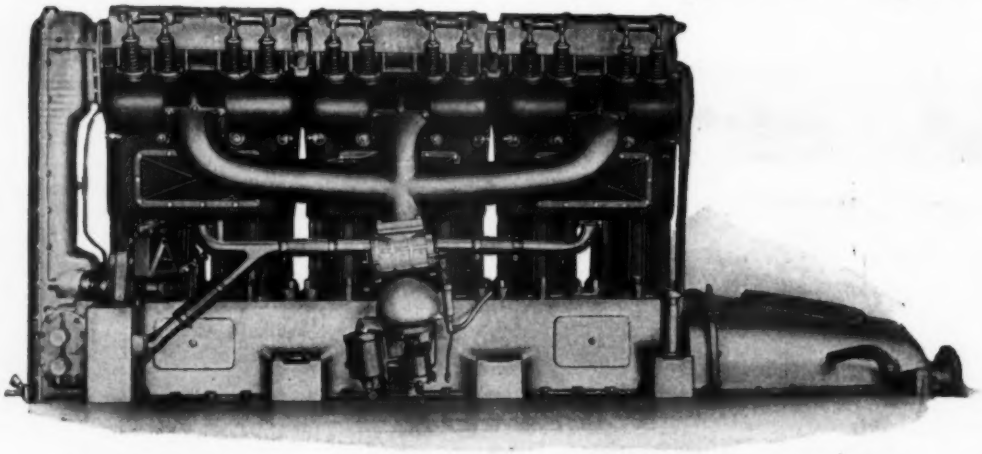
Oakley Valve Company, Inc.

61 Campbell St. Rahway, N. J.

New York Office: 82 Beaver St. Phone Hanover 5464

Ordinary high grade steel valve after one week's use

America's Premier High Speed Engine



Model J-6. Six Cyl. 7" x 9". 400 H.P. at 1500 R.P.M. Weight complete 3900 lbs.

Murray & Tregurtha Engines Are Designed and Built for the Yachtsman Who Demands More Than Mechanical Excellence

Murray & Tregurtha Corp.

Atlantic, Mass.

Advertising Index will be found on page 118

SHIP LAVATORY COMBINATION

Plumbing fixtures of superior quality add not only value to your motor boat, but also satisfaction in the added comfort and convenience afforded by their use.

CRANE Plumbing Combinations for Motor Boats

meet all the requirements of modern sanitation. Their various sizes and shapes facilitate their selection for use in large or small areas and afford ample variety of designs for the expression of individual ideas of arrangement.

SALES OFFICES, WAREHOUSES AND SHOWROOMS:

BOSTON, SPRINGFIELD, HARTFORD, BRIDGEPORT, ROCHESTER, NEW YORK, ALBANY, BROOKLYN, PHILADELPHIA, READING, ATLANTIC CITY, NEWARK, CAMDEN, BALTIMORE, WASHINGTON, SYRACUSE, BUFFALO, SAVANNAH, ATLANTA, KNOXVILLE, BIRMINGHAM, MOBILE, MEMPHIS, MUSKOGEE, TULSA, OKLAHOMA CITY, WICHITA, ST. LOUIS, KANSAS CITY, TERRE HAUTE, CINCINNATI, INDIANAPOLIS, DETROIT

FOUNDED BY R. T. CRANE, 1855

CRANE CO.

836 S. MICHIGAN AVE.

CHICAGO

WORKS: CHICAGO AND BRIDGEPORT

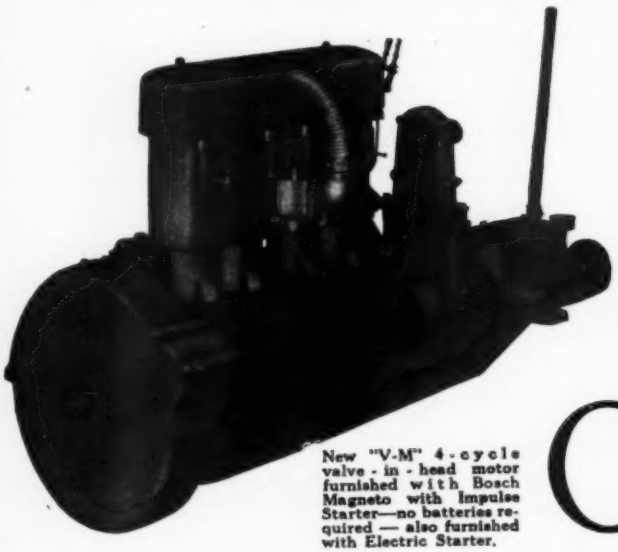
CHICAGO, ROCKFORD, OSHKOSH, GRAND RAPIDS, DAVENPORT, DES MOINES, OMAHA, SIOUX CITY, ST. PAUL, LITTLE ROCK, MINNEAPOLIS, WINONA, DULUTH, FARGO, WATERTOWN, ABERDEEN, GREAT FALLS, BILLINGS, SPOKANE, SEATTLE, TACOMA, PORTLAND, POCATELLO, SALT LAKE CITY, OGDEN, SACRAMENTO, OAKLAND, SAN FRANCISCO, LOS ANGELES

CRANE LIMITED MONTREAL, TORONTO, VANCOUVER, WINNIPEG, LONDON, ENG., SYDNEY, N. S. W., QUEBEC, HALIFAX, OTTAWA, REGINA, CALGARY.

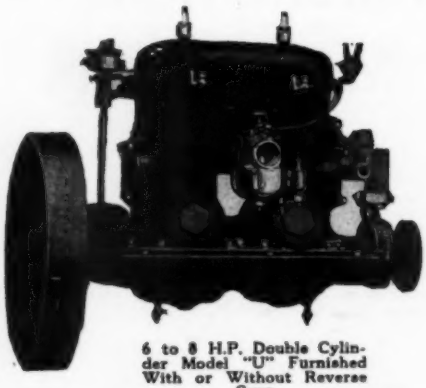
We are manufacturers of about 20,000 articles, including valves, pipe fittings and steam specialties, made of brass, iron, ferrosteel, cast steel and forged steel, in all sizes, for all pressures and all purposes, and are distributors of pipe, heating and plumbing materials.

Gray Marine Motors for 1920

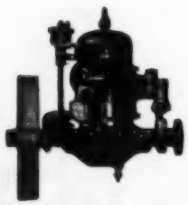
"the engine with the big crank shaft"



New "V-M" 4-cycle valve-in-head motor furnished with Bosch Magneto with Impulse Starter—no batteries required — also furnished with Electric Starter.



6 to 8 H.P. Double Cylinder Model "U" Furnished With or Without Reverse Gear



Selected for Canoes, Row Boats and Small Launches. 3-8 H.P. 2-cycle Gray Motor. Standard the World Over.

This new model V-M 4 cycle engine marks an epoch in Marine Motor History

OVERHEAD valve marine-motors are acknowledged to be of greater efficiency and power than other types and in the Gray the ultimate or valve-in-head marine motor perfection has been attained.

The Gray is designed to operate on either gasoline or kerosene, it cannot backfire, it burns the fuel keenly with practically no carbon, soot, smoke or odor and lubrication troubles are unheard of in the Gray.

Our Hot-Spot Cylinder Head gasifies thoroughly the fuel used and renders it completely combustible.

Gray Two-Cycle Motors are built in models from 3 to 8 h. p. Gray Four-Cycle Motors are built in three sizes, 10 to 50 h. p. Write for FREE catalog.

You can place your order now for shipment next spring or sooner, and should the price of labor or material be reduced, we will give you the benefit of the same.

By having your order on our books now, will guarantee delivery when you require your engine, and at the same time you are protected in price.

GRAY MOTOR COMPANY 2106 MACK AVE., Detroit, Mich.

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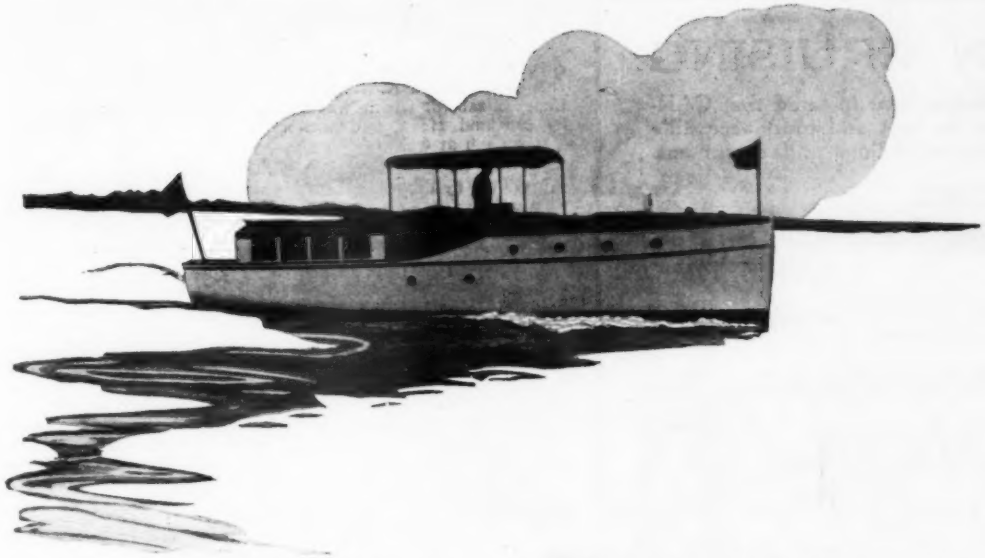


See the Burger "Boat Beautiful" Exhibit at the Motor Boat Show.

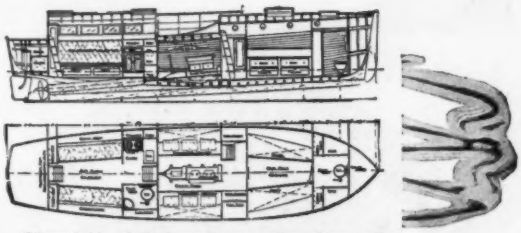
"A 50-foot Ship"—36 feet long

When clocks were the only time pieces, folks said they could never be reduced to pocket size and be accurate. Yachtsmen, similarly, long doubted that 50-foot quality, efficiency, seaworthiness and beauty—could ever be put in a 36-foot ship.

But today we have watches—and Burger cruisers.

In fact Burger 36-foot cruisers —Mower-designed and Burger-built—go beyond imitation of their bigger predecessors. Like watches, they have accomplished a certain refinement of appearance, nicety of design and detail, balance of power and grace—that makes the bulkier model seem garish and clumsy by comparison.

Every convenience, every luxury, every merit of a 50-foot cruiser—at a 36-foot standardized cruiser price. Write for our new illustrated catalog, describing this cruiser in every detail.



A large bridge deck where all may gather; all controls on bridge deck. Two light and airy cabins with full head room—two toilets. Engine room well ventilated, power plant completely accessible, full head room at forward end. Fully equipped galley. Power plant a Scripps Model D four-cylinder, four-cycle motor; 35 H. P. electric starting and lighting system.

Speed 11 miles per hour. Marine plumbing, fittings and furnishings of the highest grade. The price, $4,950, includes complete cruising equipment. Throughout, the boat is superior in every manner to any cruiser of similar character at its price. Thoroughly, substantially and KNOWINGLY constructed. A cruiser of long life, beautiful appearance, comfortable accommodations and highly satisfactory performance.

BURGER BOAT COMPANY, MANITOWOC, WISCONSIN

The Burger 26-foot Runabout is about the classiest small boat ever launched. Complete details will be furnished upon request.

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THE engine you buy, or use, to be efficient, to be free from ignition worries, to be economical, must be Bosch Magneto Equipt. It may cost you or the engine makers a trifle more, but it is worth it.

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Be Satisfied ***Specify Bosch***

AMERICA'S SUPREME IGNITION SYSTEM

The Open Boat Makes a Cruise

(*Continued from page* 10)

entrance to Biddeford Pool Harbor became visible. Course was changed then and K. W. headed slightly northeast and ran for Cape Elizabeth, which was picked up at five o'clock, running by Portland Head, and anchor was dropped at the Portland Yacht Club at 6:20.

Another trip ashore, mainly to find a tonsorial artist, followed supper, for by this time both skipper and chief looked as though they were castaways just rescued from a prolonged sojourn on some desert isle, but the nearest we came to any kind of an "artist" was a chap who was doing his best to paint the town red.

Without the necessity of a bosun to pipe all hands on deck the skipper and chief turned to at seven the next morning and got under way about three hours later, stopping at a gasoline station to take on ten gallons of "juice."

The skipper was nothing if not original, and decided to leave Portland Harbor by a different route. He laid a course between Peaks Island and Cushing's Passing Peaks about 10:30 and Black Buoy S-5 fifteen minutes later on a due east course for Half-Way Rock. Passed Half-Way Rock at 11:45 and arrived at Cape Small, Glover's Rock, at 1:45 and passed between Seguin and Ellingwood Rock at 2:20. Ran by the Cuckolds at 3:25 and swung up between Squirrel Island, Capital Island and Burnt Island, and finally tied up at the float at Capital Island at exactly four o'clock.

The friends of the crew who were sojourning here were very much surprised to see us walk up the path at Capital, as they had not heard that we were coming up. Shore quarters having been procured, both skipper and chief worked manfully to get the stuff out of the lockers for airing and drying. This was particularly needful of mattresses, blankets and sofa cushions, all of which had become damp. All hands turned in early ashore and it was necessary to ring that boarding-house bell four times in the morning to get the skipper out of bed, a featherbed with springs, his nights of protruding slats having proven too much for him.

Several days were put in taking various trips around and to the many beautiful islands around Boothbay Harbor, visiting friends at Westport, Ocean Point, Southport and Boothbay. No long trips were undertaken due to the fact that the crew had about all of the extended sea tours they desired for a spell and another lengthy sea journey was before them on the return.

The weather was beautiful all during the stay at Capital Island and the only work that was done on the craft was to put the boat on the beach and repack the outside stuffing-box, which was leaking quite badly. The crew enjoyed itself dancing, walking, bowling and playing pool. As there were many old friends from New York, all hands had a very fine time during the days spent on the island.

The return trip began Thursday, September 2, with K. W. getting under way at 10:30 A. M., running down between Southport Island, followed by the raucous blasts of horns and the more gentle waving of handkerchiefs by a great many people ashore.

The crew had been warned by a couple of old salts that the day was anything but the kind to start on an ocean trip in a small craft, but this did not deter the seafaring skipper, who declared that his ship was equal to the task. Consequently he headed her down and swung around the Cuckolds and made for Seguin. Going across the mouth of the Kennebec River, we soon found out that old "Cap" Read, one of our advisers, was right when he said the wind was going to blow, for it was increasing all the time. The spray-hood was put up and all movables lashed fast, and from all appearances we had an interesting period in store for us before we made Portland, which was our objective when we left Capital Island.

K. W. passed Seguin at 12:15 and Half-Way Rock at two o'clock and, as the wind began to moderate, we decided to run for Biddeford, and the course was changed to clear Cape Elizabeth, which we did at four o'clock. Wood Island Light was passed at 5:20 and the mud hook was tossed over the side in Biddeford Pool at six o'clock.

This had been one of the worst days encountered on the whole cruise, and while the skipper and chief were ashore in the store writing post-cards the room refused to stay "set" and was continually going up and down like a revolving rocking-chair, if you know what that is.

A start was made at 10:20 the next morning and Black Can Buoy was picked up at 10:50, but at this juncture it was necessary to stop the engine due to motor trouble and K. W. did not get under way again until 11:20. While the engine was stopped it was decided to pull the dink up on the stern deck as the boat could make better time that way than by towing it.

Keeping well off shore, K. W. ran down the coast line and passed Cape Porpoise at 12:05 and Cape Neddick at 2:25 and York Harbor Red Buoy at 2:44, with Stone's Rock following at 3:05. The entrance to Portsmouth Harbor was abaft at 3:40 and Gunboat Shoal twenty minutes later. Red Buoy S-2, at the entrance to Newport Harbor, was picked up at 6:30 and anchor

(*Continued on page* 98)

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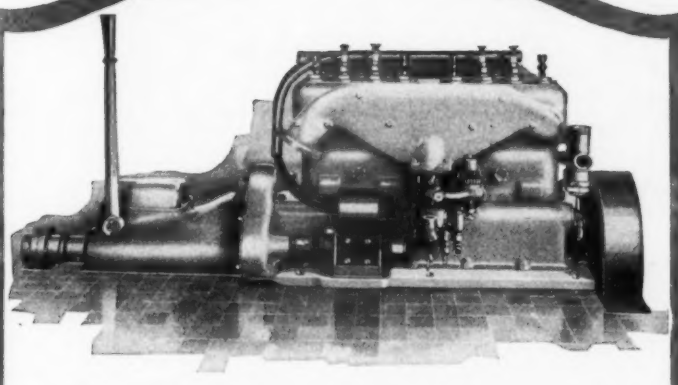


With This Motor, Driving a Boat Is Easy as Driving a Car

No longer has the landlubber "got anything on you." No longer need you envy him for the calm, confident manner with which he gets into his car, puts his foot on the starter and scoots away.

You can do all this and have the same confidence in your Motor Boat provided you power it with a Caille Aristocrat motor. It's the automobile engine of the motor-boat dominion. It has an electric self-starter, furnishes electric lights and is controlled by instruments on a dash, just like a high-priced car.

A glance at the instrument board tells you instantly whether oil is being pumped properly and whether your Northeast generator is charging your Willard battery. And you are thrilled with the instant response you get from your Schebler carburetor.

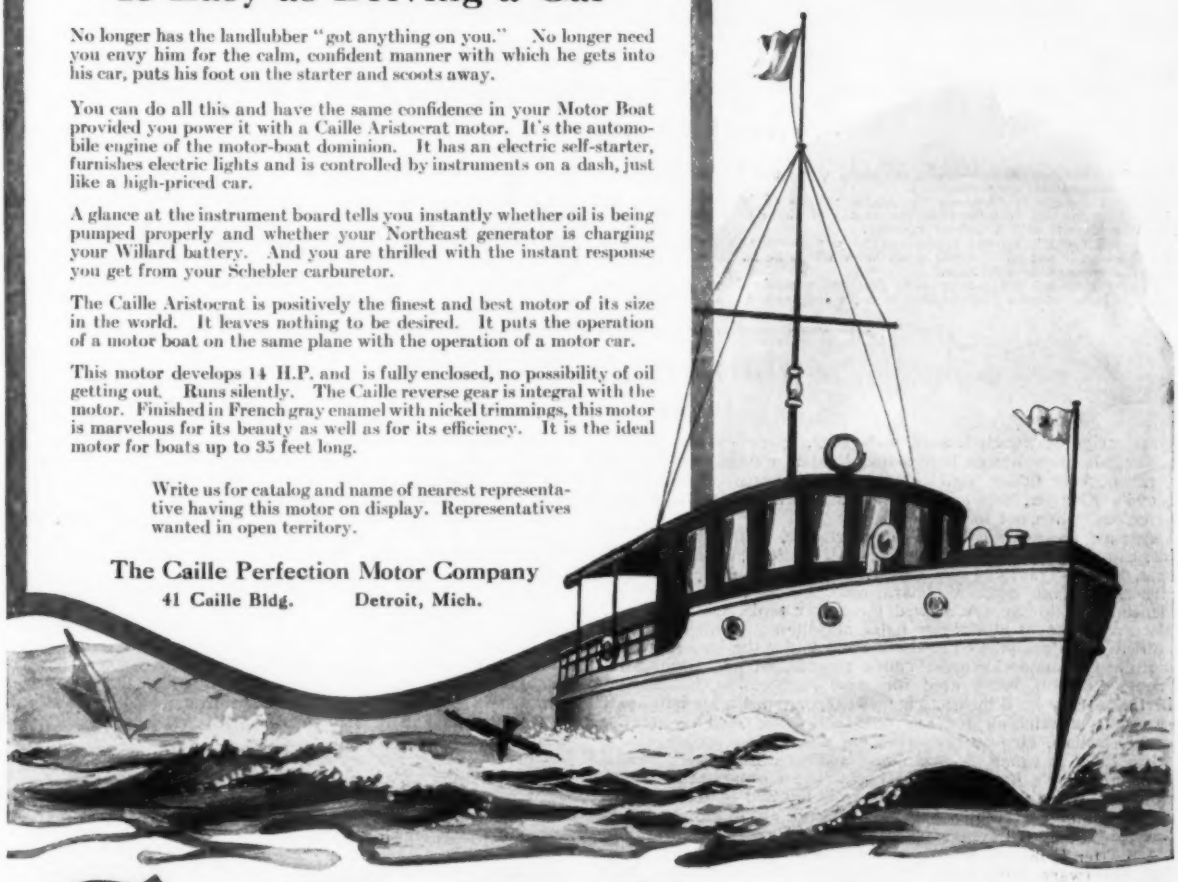
The Caille Aristocrat is positively the finest and best motor of its size in the world. It leaves nothing to be desired. It puts the operation of a motor boat on the same plane with the operation of a motor car.

This motor develops 14 H.P. and is fully enclosed, no possibility of oil getting out. Runs silently. The Caille reverse gear is integral with the motor. Finished in French gray enamel with nickel trimmings, this motor is marvelous for its beauty as well as for its efficiency. It is the ideal motor for boats up to 35 feet long.

Write us for catalog and name of nearest representative having this motor on display. Representatives wanted in open territory.

The Caille Perfection Motor Company

41 Caille Bldg. Detroit, Mich.



CAILLE Aristocrat Motor

A Major Operation De Luxe

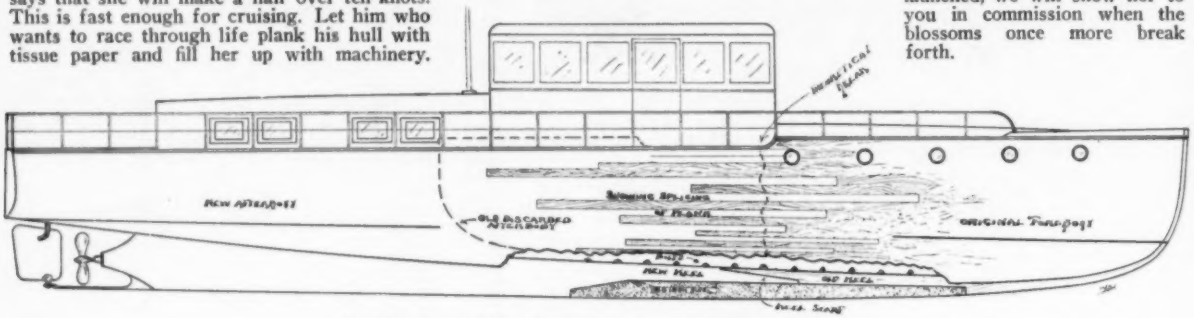
(*Continued from page* 24)

Sounds like a Gloucester fisherman, but this boat is built for the deep sea. Similarly the planking was not very difficult. It was necessary to peel off some plank eight or ten feet forward of the theoretical break, and, on the other hand, when removing the stern, we left many of the old planks standing out a like distance aft. This is an important point, plan your joints before you cut. The old hull, as the new, was fastened with screws which made removal infinitely easier than with nails or rivets. The clamps and the bilge stringers were readily spliced to the old. The work from now on will not depart from standard practice.

A new six-cylinder, heavy duty Sterling will turn a Columbian wheel 32 by 32 inches 500 r.p.m., although the Sterling agent says it will not, so there you are. No less an authority on naval architecture than Ralph E. Winslow, of the Herreshoff Company, who has passed judgment on this amateur design, says that she will make a hair over ten knots. This is fast enough for cruising. Let him who wants to race through life plank his hull with tissue paper and fill her up with machinery.

I prefer an inch and an eighth of yellow pine between me and the rocks and a place to swing a cat below decks. In addition to her starting-lighting system, she is to have an auxiliary generating set, 32-volt Edison battery, a large motor-driven bilge pump and a smaller pump to flush decks and wash the mud off the anchor chain. She will have a coal range, and a bathtub somewhat larger than a finger bowl. Unlike the average boat, the hull will be divided into three entirely separate compartments by heavy watertight bulkheads at the forward and after ends of the motor room. Access, nevertheless, from one end of the boat to the other may be had without going into the weather by companionways that lead to a roomy deckhouse located amidship.

Enough of prognostication. If this spasm gets by your distinguished Editor, and Kex does not float bottom up when launched, we will show her to you in commission when the blossoms once more break forth.



Profile view which shows the before and after condition

Note—By Stebbins—Before staging the above mentioned dramatic entrance, many preliminaries were necessary.

Huckins apparently possesses the magic powers of invisibility, and of obliterating himself entirely from the minds of those near him and surrounding himself with a veil of mystery.

You call for him on the telephone and a pleasant voice replies, "No, Mr. Huckins is not in. I really don't know where he is. I might be able to get a message to him later."

Then you muster courage to go to the lumber yard. Man in the office does not know whether Mr. Huckins is in his shop or not. You start down the yard, and are met by a man who probably is Huckins's man Saturday. He says no one is allowed in the yard. This you ignore, and, passing on, meet a second man, who doesn't know where Mr. Huckins is, but will inquire. Huckins being at the moment plainly visible at the window, this seems rather far fetched.

Braving all obstacles, you boldly enter the shop and hail, "Ahoy there Frank," and a genial voice answers, "Hello there Steb," and Huckins in the flesh appears above.

Barring the above named eccentricities, Huckins, take him by and large is O.K.

Mariposa, a 30-Footer

(*Continued from page* 21)

Four strips of 2-inch beaded mahogany, spaced, made fast to under side of purlins on both sides of cabin, running full length, form pockets under roof for stowing tobacco, extra linen, Lloyd's Register, tide tables, navigation laws, etc., and a suit of colors, when not in use.

Against the after bulkhead, on port side, is the ice box, 75 lbs. capacity, with room for fruit, water bottles, meats, etc. A sink, having gravity water supply, is part of the ice box construction. Both drain outboard, with check valves in pipes. Beneath ice storage are stowed the larger tools, vice, saw, etc. Pots, pans, stoves in separate units, and the season's canned and bottled goods are stowed in the lockers under the bunks.

Pullman hammocks make handy receptacles, and keep cabin from confusion, being used for same purposes as in sleeping berth. A tray 6 x 8 inches, 2 inches deep, against after bulkhead, serves as a catch-all for any odds and ends, such as screws, corks, pencils, etc., to be sorted out and put in proper places when there is time. Elastic cords against ceiling, over bunks, hold straw or other stiff shore hats. The curtains at the windows are of sun fast material, on rods top and bottom. Extra curtains hung at night across all windows make for more privacy, and keep out the early morning light.

On after bulkhead, above ice chest, is locker for china, glass, and silverware, with racks for tumblers, and an auxiliary cupboard for extra cutlery and silver. There is also a space for a wicker-covered Eighteenth Amendment reminder, which *was* very handy.

The running, absent, and dinghy lights are hung against this bulkhead, over the flywheel cover, when not in use. The engine is entirely cut off from the cabin by a collapsible mahogany cover. This arrangement of lanterns and fire extinguisher may be made ornamental in effect, and, being under cover, saves polishing. Seven 10 c.p. to 21 c.p. electric lights, with coach candle lamps for emergency use, provide illumination for cabin.

The windows can be placed at any position required for ventilation or storm. The cockpit floor, 7 ft. x 11 ft., 16 inches higher than the cabin floor, is covered with Battleship Linoleum, secured to deck with seam compound. This has never stretched, shrunk, or warped. On starboard side is a locker covered with rubber tread, holding storage batteries, and of use as seat or step when coming over the side. Another locker, opposite, is for crew's personal belongings, and holds a gallon water jar.

The steering wheel is on port side, and all electric and other controls are on bulkhead, within reach. On stern transom seat there is room for four. The cockpit is furnished with steamer chair and camp stools. A collapsible table is carried, lashed to underside of canopy frame. The cockpit is illuminated by two 21 c.p. electric lights.

Under stern transom and deck is storage for two hand-pumps, gas strainer, eight gallon cans of cylinder oil, two galvanized pails, one 40-gallon copper tank, and one 15-gallon steel gas tank, two riding lights, two gallons of kerosene, and extra oil founts for all lamps. Spare cables and ground tackle are stored under the cockpit, where there is 750 lbs. pig lead ballast.

A canvas curtain, furled, is ready to drop and make fast, which divides the cockpit into a compartment 7 x 6, which is plenty of room for setting up a cot, for crew or guest, leaving 5 ft. space to cabin bulkhead, insuring privacy.

One 25-lb. Eels, and one 40-lb. folding fluke anchor are carried on deck, both bent on to 120 ft. cables, coiled in mats, ready for instant use. Bow and stern lines are also provided. These cable mats assist in keeping the cabin roof cool.

Much of the romance has gone out of yachting (?), as is indicated by the names of boats of today as compared to those of the early '80's, some of which are still afloat, and is further evidenced by the different tune in the "whistling for a breeze" from the remarks addressed to a balky motor by those who have them, and, formerly, never being afraid of the other fellow; but it's all to the good, for if you don't bother the motor with screw-driver and wrench, or expert, use the same gentle and assiduous care for motor and connections as was applied to sails and gear, "she will take you there and bring you back," and with full equipment of flags and their proper use, the same fun remains as formerly, because foreign and national men-o'-war and yachtsmen are as careful to acknowledge salutes and other courtesies as of yore.

Consolidated at the Show

Standard Runabouts

32′ x 6′
Draft 2′4″
Speed 22 miles

25′ x 5′8″
Draft 1′10″
Speed 16 miles

Early deliveries

Details on request

IT is when the finest productions of boat builders and marine manufacturers are gathered together that the superior workmanship and finish of Consolidated boats are most evident. The best never suffers by comparison.

Boats of whatever size or type, if built by the Consolidated Shipbuilding Corporation, are invariably of the same quality—the highest.

Runabouts are now in order. We have several of our standard types ready for early delivery. Especially suitable for Florida service.

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SHIPBUILDING CORPORATION
MORRIS HEIGHTS, NEW YORK CITY
Builders of Speedway Engines

MOTOR BOATING PRACTICAL HAND-BOOKS

Every motor boatman has long felt the need for a really complete and comprehensive library devoted to their favorite pastime—motor boating. One of the obstacles to the accomplishment of this important work was the difficulty in finding any one writer who could cover the field in its entirety. In presenting the new series of practical handbooks, MoToR BoatinG believes that the problem has been solved at last. These books are edited by Charles F. Chapman, M. E., the editor of MoToR BoatinG, and they are the results of months of untiring effort on his part, together with the best of thousands of suggestions sent to him by motor boatmen themselves. The list of the contents given below will give you some idea of the vast amount of ground covered by these volumes.

Practical Motor Boats and Their Equipment

Volume 1.—The first volume tells you what the ideal boat for various kinds of service should be and what to look for in buying a boat. Many suggestions about decoration and hints on all kinds of equipment. All about steering gears, wireless outfits, electrical attachments, etc. Glance over the list of contents appended herewith: Hulls, Ballast and Seaworthiness; Round Bottom *vs.* Sharp Bilge; What are the Advantages of Flare? Raised Deck *vs.* Trunk Cabin; Best Proportion of Beam to Length; Selecting a New Design; The Advantages of Bilge Keels; Open or Solid Deadwood? What Makes a Hull Seaworthy? The $1,000 Cruiser; Buying a Second-Hand Boat; Types of Bows and Sterns; Exterior Arrangement of Cruisers; The Best Cabin Arrangement; Finishing Up the Cabin; Changes in Interior Arrangement; Interior Arrangement for Open Boat; Propeller-Rudder Arrangements; Best Position for the Rudder; Advantages of the Outboard Rudder; Different Steering Positions; Steering Equipments for Motor Boats; Steering Gear for the Cruiser; The Steering Gear for a Runabout; Steering the Boat from the Side; The Electrical Equipment; Making and Wiring a Switchboard; Electric Lighting on a Motor Boat; The Inexpensive Lighting Outfit; Wiring the Small Cruiser; The Storage Battery; The Dynamo Cut-Out; Wireless for a Small Cruiser; Tender for a Thirty-foot Cruiser; Building a Folding Dinghy; Installing the Boat Boom; What is the Best Galley Arrangement; Ventilating the Galley; The Galley Stove and Its Installation; Making a Fireless Cooker; A Portable Cook Box; Running Water for the Cruiser; How to Build a Portable Table; A Table for the Open Boat.

Practical Motor Boat Building

Volume 2.—As its title implies, this volume takes up the building of your own boat. It also covers the construction of the necessary fittings such as awning, windshield, etc. Every boatman sometime or other builds a boat, and a book of this kind will save much time and prevent many mistakes. List of contents: Types of Motor Boat Fastenings; Boat Building Woods; Laying Down a Boat's Lines; Converting a Trunk-Cabin Cruiser; A Steam Box for Amateur Builders; Joiner Between Stem and Keel; Fastening the Frames and Floors; Boring the Forgotten Limbers; Fitting the Garboard Plank; Boring the Shaftlog; Fitting the Stuffing Box; The Stern Bearings for a Cruiser; A Water-Tight Companionway; How to Canvas a Deck; Hinged Water-Tight Hatches; Making a Water-Tight Hatch; The Coaming of an Open Boat; Fitting a Swinging Port Light; Making a Self-Bailing Cockpit; A Water-Tight Window Sash; Making a Water-Tight Skylight; How to Build an Engine Housing; How to Make an Engine Cover; Building a Tool Locker; Constructing an Extension Transom; How to Make a Pipe Berth; An Ice-Box for a Cruiser; Installing a Toilet; How to Rig a Signal Mast; How to Make a Spray Hood; Fitting a Folding Windshield; An Awning for the Open Boat; A Cover for the Open Cockpit; Screens for the Side Light; A Support for the After Light; A Seat for the Man at the Wheel; Removable Davits for the Cruiser; The Boarding Steps; A Bow Rudder for Your Hydro; The Motor-Driven Club Tender.

Practical Things Motor Boatmen Should Know

Volume 3.—Navigation is one of the important subjects covered in volume three of the series. Tells you how to steer, how to increase the factor of safety, and a host of other things relative to the proper running of your boat. The chart and compass are both fully explained in a clear and comprehensive manner. The list of contents will tell you more about it; Advice for the Beginner; Lessons Learned from Experience; Good Things to Know; Increasing the Factor of Safety; Which Way Should the Boat Steer? Why a Boat Steers Badly; Why do Boats Squat? Figuring the Boat's Speed; Ballasting the Cruiser; Getting Off Bottom; To Ride Out a Storm in a Motor Boat; The Why and How of Storm Oil; Preventing Fire; Handling Ground Tackle; Government Charts; Stowing the Anchor on a Cruiser; Diminishing Deviation; Preventing Electrolysis; Stowing and Using Charts; How to Make a Chart Case; Keeping a Motor Boat's Log; How to Make a Sextant; Tides and Tidal Waters; Taking Her Through the Canals; The Best All Round Dinghy; Towing the Tender; Handling the Dory in a Seaway; Getting the Tender Aboard; Planning for a Cruise; Equipping for a Cruise; Equipment for Offshore Cruising; Novel Events for Regatta Day; Handicapping; The Object of a Handicap Rule; Laying Off a Race Course; Measuring the Length of a Race Course; Preparing a Boat's Bottom for a Race; How to Build a Turning Buoy; Starting Boats in a Race; Stowing the Signal Flags; Fitting a Gun Mount; A Fish Box for Your Cruiser; A Cabin Wall Rack.

Practical Marine Motors

Volume 4.—All about the marine motor; what it should and should not be. Tells why the automobile engine is unsuccessful in marine work. The best location for your engine, the ideal engine bed, the fuel tank, exhaust and countless other suggestions that will enable you to get the best results from your power plant. List of contents: Purchasing a Marine Motor; How Many Cylinders? Power per Cylinder; High Speed *vs.* Heavy Duty; Long Stroke *vs.* Short Stroke; Correct Motor Design; Changes in One's Power Plant; The Things that Cause Vibration; The Automobile Engine for a Boat; The Best Position for the Motor; The Ideal Engine Compartment; Placing the Engine in the Hull; Installing a Motor in a Canoe; Installing Power in a Yawl; Converting a "Banker" to Power Engine Installation in a Hydroplane; Putting Power in the Rowboat; Limits of Shaft Inclination; Constructing the Engine Bed; Getting the Motor Aboard; Lining Up the Propeller Shaft; The Best Exhaust; Mufflers *vs.* Under-Water Exhausts; Installing an Under-Water Exhaust; Primary Batteries for Ignition; Keeping the Ignition System Dry; Installing a High-Tension Magneto; From Make and Break to Jump Spark; Installing the Gasoline Tanks; Taking Care of Extra Gasoline; Spark and Throttle Controls; Constructing a Rear Starter; Propeller for Engine and Hull; Installing a Universal Joint; Gearing Motor to Propeller Shaft; The Automobile Throttle; Harnessing the Main Engine; Rebabbitting a Worn Bearing; Should Fuel Line be Inside or Outside.

Practical Motor Operation and Maintenance

Volume 5.—One of the most valuable books of the entire set. Your motor's ills and how to cure them. This volume tells you how to adjust your carburetor, how to fit piston rings, how to remedy poor compression and a number of other things that will enable you to doctor your own motor. List of contents: Locating the Motor's Troubles; The Overheated Motor; Starting in Cold Weather; Overhauling a Marine Motor; How to Save Fuel; The Fuel Situation; Using Low Grade Fuel; How to Run on Kerosene; Supplying the Fuel to the Carburetor; Adjusting the Carburetor; Cleaning the Fuel Tanks; Cleaning the Gasoline Line; Stopping Up the Leak in the Tank; A Home-Made Gasoline Gauge; Carrying an Extra Supply of Oil; Mixing the Fuel and Lubricant; Remedying Leaky Compression; Killing the Carbon Jinx; Tool and Spare Parts to Carry; Removing and Replacing Piston Rings; Repairing a Leaky Cylinder; Grinding a Motor's Valves; Setting the Valves; Timing the Ignition System; Cleaning the Water Jacket; Making and Fitting a Gasket; Patching Up a Bearing; Straightening the Sprung Shaft; Truing a Bent Propeller; Removing the Flywheel; Separating Couplings and Pipe Fittings; Changing the Shaft Hole Location; Utilizing the Exhaust; Disposing of the Bilge Water; Heating a Small Cruiser's Cabin; Operating the Outboard Motor; The Clean and Quiet Boat; Charging a Storage Battery; When the Motor Stops Unexpectedly; Making a Unit Power Plant.

Practical Suggestions for Handling, Fitting Out and Caring for the Boat

Volume 6.—This volume is an especially valuable one. You will find in it points covering the care of your boat that you never dreamed of before. Whether you are a beginner or a finished expert this book will give you a better knowledge of the handling of your craft than you can imagine. List of contents: Putting the Boat into Commission; Fitting Out a Thirty-Footer; Suggestions for the Beginner; Refinishing Bright Work; Keeping the Wood Surface Bright; Putting the Boat Out of Commission; Laying Up an Unsheltered Boat; Hauling Out for the Winter; Covering the Boat for the Winter; Launching from a Wharf; Correcting Faults; Lengthening Out the Boat; Moorings and Buoys; Taking Steps to Safeguard the Anchor; What to Use in the Bilge; Preserving the Wood in Boats; Emergency Rigs for the Cruiser; Auxiliary Sails for the Cruiser; Providing an Emergency Rudder; Preparing for Southern Waters; Stopping the Troublesome Leak; Replacing a Broken Plank; Removing Broken Lag Screws; Raising the Boat's Stern; Clearing the Propeller; Protecting the Bow and Stern; Open Boat Sleeping Quarters; Ventilating the Cabin of Small Cruisers; Converting the Open Boat to a Cruiser; Making a Cover for the Open Boat; Preventing Electrolysis; Building a Club Float; A Floating Boathouse; Constructing a Landing Stage; Building the Marine; Keeping the Thief Out; A Place for Your Shore Clothes; Stowing for Life Preservers; The Winter's Alterations; What Changes Shall I Make; The Satisfactory Bilge Pump; The Pressure Water System; Making a Pelorus; Your Storm Curtains; Life-Saving Equipment; The Absent Owner's Anchor Light; Mounting the Reverse Gear.

Price $1.50 Per Volume, or $7.50 Per Set of Six Volumes of Over 1,000 Pages

The books measure 7 x 10 inches and are handsomely bound in cloth. Each volume is fully illustrated and printed in clear type on fine paper.

MoToR BoatinG **119 West 40th Street, New York**

Advertising Index will be found on page 118

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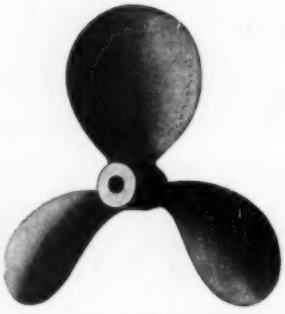

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THE BARKER FACTORY
NORWALK CONNECTICUT

Write for Barker "Red Letter Book" of Motors

The Open Boat Makes a Cruise

(*Continued from page* 92)

was cast over in back of the breakwater at 6:45. The crew decided to celebrate the good run by some extra "fixin's" and corn chowder was the result, the skipper walking away with the honors as principal consumer.

Turning out at eight o'clock the next morning, the crew pulled up anchor at 9:45 and started for Anisquam, running down the shore of Plum Island and keeping quite close as it was a wonderful day. We arrived at the Anisquam Yacht Club at 11:45, but not until the skipper had moved the tops off of a couple of sand bars by getting in too close.

Proceeding down through the Anisquam Canal, K. W. stopped at 12:05 at the railroad bridge gasoline station for another supply of John D.'s "gravy" and arrived at the Eastern Point Breakwater at 12:45.

Running down the coast from Gloucester many boats were encountered headed east to spend Labor Day, and a number of fishing parties were passed off Marblehead Harbor.

The Graves Light was picked up at 3:20 and Deer Island was passed at four o'clock, running up through the bay and landing at the float of the yacht club at five o'clock.

The crew were met by many friends at the club and received hearty congratulations on the success of the trip, and particularly on their return, which seemed to border perilously as a backhanded compliment of their seamanship.

Demonstrating a New Principle in Runabout Propulsion

(*Continued from page* 11)

clear cut line of transition between the displacement boat and the hydroplane. The so-called 40-mile an hour displacement motor boat exists in name only. There is no such thing in reality. We wouldn't want one if it were possible to have one.

In order to obtain a speed in our so-called displacement boat of say 40 miles an hour, the shape of the underbody must be properly designed for such speed. In other words, if we had a 20-miler and desired 40 miles per hour we couldn't get it by simply adding power. The naval architects' most difficult problem in designing is to get the shape of the underbody correct for the speed that he desires. He wants to use a minimum of horse power and obtain a maximum of speed.

In any craft which planes even slightly the feature of design which the architect takes advantage of to obtain maximum speed with minimum power is to keep the wetted surface as it is called, to the lowest possible amount. The amount of wetted surface on the modern boat is its chief resistance to being propelled through or over the water. In the out and out hydroplane, the wetted surface is decreased by employing one or more transverse steps or breaks in the underbody. But steps must not be used in a displacement boat according to the rules defining the characteristics of a displacement boat. Therefore some other method must be found.

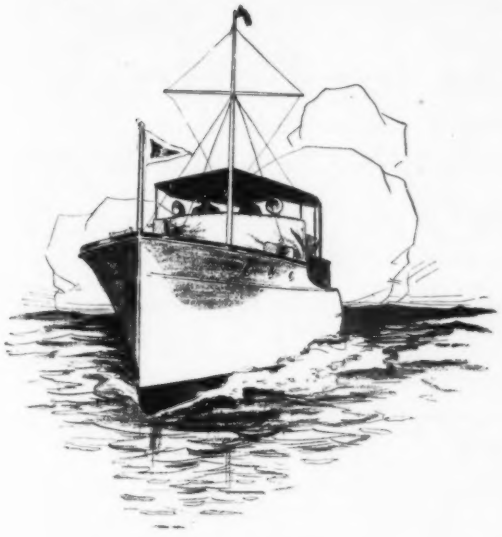
By referring to the sketch on page 11, the point 0 will be recognized as about the point where the underbody of a displacement boat first touches the water inasmuch as the bow rises as the boat runs. Therefore the surface forward of the line A O A′ is out of water and there is therefore no wetted surface on this part of the hull. This is an essential feature of every properly designed and correct running runabout.

This correct condition should not be confused with that which we find in some improperly designed boat, that is the bow raising high out of the water and the stern squatting. In a correct boat the forward portions of the boat are out of water only because the whole boat raises without changing its fore and aft trim to any great extent. In a runabout which is acting properly the boat's stern or transom actually rises as the boat comes up to speed instead of squatting.

As the boat proceeds through the water, the first point of contact of water and hull is at about A O A′. This is the point where the lifting force of the hull aft of A O A′ begins. This lifting force is greatest on the underbody between the line A O A′ and B B′. As we work further aft in area between B B′ and C C′, this lifting force becomes gradually less and less and further aft we find the resistance due to wetted surface becomes greater than the advantage gained by its lifting power. It therefore follows that if some of this detrimental surface could be eliminated it would mean a reduction in wetted surface with a corresponding increase in speed. This is just what Mr. Gardner and Mr. Tripp did and they obtained more speed for the same size and weight of hull with the same amount of power than has yet been obtained.

The area represented by the shaded section D P D was cut out from the after-body leaving a space, the top of which was filled with air and the bottom with water. The illustration of the stern on page 11 will give one an excellent idea of how this was done and how the stern really appears.

Advertising Index will be found on page 118



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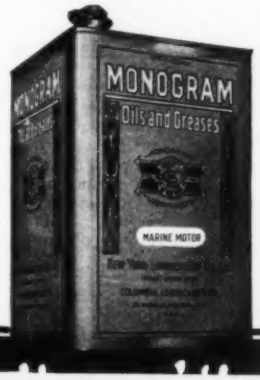

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(See Complete Table of Contents on page 96)

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This volume describes in detail how to design a motor boat. It also contains complete plans of 30 Cruisers, Runabouts and Auxiliaries. The plans include lines, table of offsets, interior plans, profiles, construction details, etc. There is no book published at the present time which describes in everyday language the details of designing a boat according to your own tastes. The plans of Ideal Cruisers, Runabouts and Auxiliaries are complete in every particular. They include the best of the plans published in MoToR BoatinG during the past several years. The plans include boats of from 20 feet in length up to 40 feet. The drawings are all to scale and large size.

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Plans and specifications of the following boats are included: **Edith, a 15-foot runabout; Jane, an 18-foot runabout; Katharine, a 30-foot cruiser; Dorothy, a 25-foot runabout; Zenith, a 25-foot cruiser; Cyclone, a 36-foot auxiliary; Eclipse, a 40-foot express cruiser; Magnet, a 28-foot cruiser; Tornado, a 45-foot auxiliary schooner; Broncho, a 29-foot cruising runabout; Shark, a 21-foot utility runabout; Claire, a 36-foot express cruiser.**

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No. 6—Buzzards Bay.
No. 7—Block Island to Vineyard Sound, including Narragansett Bay.
No. 8—Delaware Bay.
No. 9—Chesapeake Bay, Part I, Upper Part.
No. 10—Coast of Maine, Portland to Rockland.
No. 11—Hudson River, Kingston to Albany.
No. 12—Chesapeake Bay, Part II, Central Part.

Series B

Series B Charts No. 13 to 24 are in the course of preparation, and will be forwarded as ready. Series B is as follows:

No. 13—Lake Erie—Eastern Part.
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No. 18—Massachusetts Coast.
No. 19—New England—Newburyport to Portland.
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Advertising Index will be found on page 118

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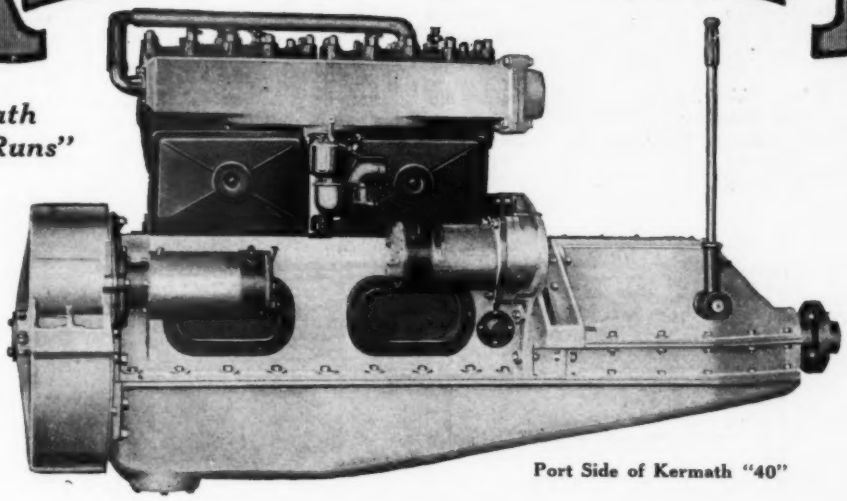
"A Kermath Always Runs"



Port Side of Kermath "40"

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The Marine Motor That Really Qualifies

THE Kermath 40 is a big husky type of marine motor, built along lines that develop greater strength. To secure this extra strength all bearings and working parts are made extremely large.

Proven reliability and balance make the Kermath 40 a motor unsurpassed for ease of operation and control. In fact, it exceeds the expectations of every one who ever handled a marine motor of this type.

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This Kermath unit of motor perfection is an example of what good engineering can accomplish in producing a strong, powerful, smoothly operating marine engine.

Produced from careful designs by good workmanship on all of its parts, the Kermath 40 has the power that makes it dependable for continuous day after day service, no matter how large the load or how constantly it is in use.

Back of this wonderful Kermath 40 horse power marine motor is the prestige of the Kermath Mfg. Company, who for years have been recognized as the leading builder of America's most dependable ***high grade*** marine motors.

Get the real facts about the Kermath 40. Write us for the specifications of it. Address Dept. "O".

4 cylinder, 4 cycle, 4½" bore, 6¼" stroke
$1,650 complete, F. O. B. Detroit, Michigan

KERMATH M'f'g Co.
DETROIT MICHIGAN.

My Ideal Motor Houseboat

(*Continued from page* 35)

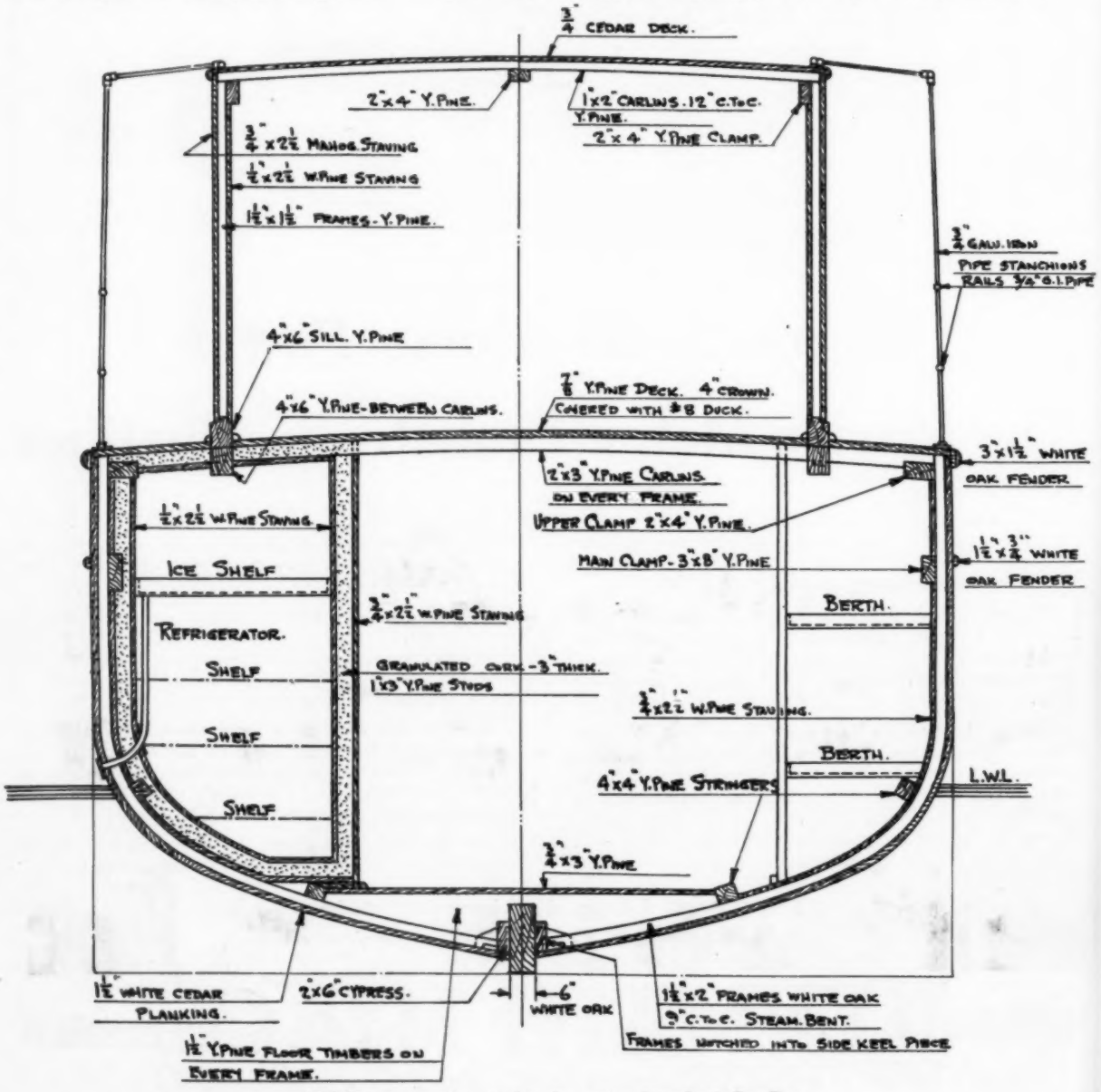
stern and for the owner's use. One thing that was decided upon as necessary was that each stateroom should have its own lockers, and this was done, as will be seen by glancing at the plans. Under the stern deck we have the steering quadrant and gear and storage space for ropes, tackle, and other boat gear.

Let us now view the exterior and see the manner in which it will be treated. The bottom will be painted a red anti-fouling color over a coat of red lead. The topsides will be painted white, including the raised sheer forward. The raised sheer from the forward end of the pilot house and then aft, will be finished in mahogany. The window sashes will be mahogany also to match the hull. The upper house will be mahogany finished complete, including window sashes and doors.

The awning will be of khaki-duck and will extend from the forward end of pilot house to after end of raised sheer, aft. The canvas dodger around main deck rail will be white and I expect a very snappy profile with this white streak of canvas against a mahogany background. I depend very much on this canvas dodger to cut down the apparent height of the upper house. Without it, the boat would undoubtedly look very stumpy.

The fittings of Que-Pee will be of bronze. All hardware, including that in the living quarters, forward and aft, will be of bronze or brass as selected. Cleats and chocks will be located by the owner to suit conditions and will be of bronze and of a size to suit the ship. The windows in the pilot house, saloon and veranda will be of the drop sash type with a water pocket under each, to drain overboard.

The foregoing brief description of the design, layout and fittings of Que-Pee tell the story of my ideal houseboat as well as I am able to tell it. I rely more on the plans than on the written description, as I hope the motor boat enthusiasts will see the vessel in the same light and manner as I see her, not as a quick, hastily put together design, but as a result of quite a long period of study and adaptation of the best points of the many good ships which are afloat today. I have attempted nothing radical in design, so I expect Que-Pee will prove very successful.


3/4 CEDAR DECK.
2"x4" Y. PINE.
1"x2" CARLINS. 12" C. TO C. Y. PINE.
2"x4" Y. PINE CLAMP.
3/4" x 2 1/2" MAHOG. STAVING
1/2" x 2 1/2" W. PINE STAVING
1 1/2" x 1 1/2" FRAMES - Y. PINE.
3/4" GALV. IRON PIPE STANCHIONS
RAILS 3/4" G.I. PIPE
4"x6" SILL. Y. PINE
4"x6" Y. PINE - BETWEEN CARLINS.
7/8" Y. PINE DECK. 4" CROWN. CANVASED WITH #8 DUCK.
3"x1 1/2" WHITE OAK FENDER.
2"x3" Y. PINE CARLINS ON EVERY FRAME.
UPPER CLAMP 2"x4" Y. PINE.
1/2" x 2 1/2" W. PINE STAVING.
ICE SHELF
MAIN CLAMP - 3"x8" Y. PINE.
1 1/2" x 3/4" WHITE OAK FENDER.
3/4" x 2 1/2" W. PINE STAVING
BERTH.
REFRIGERATOR.
SHELF
GRANULATED CORK - 3" THICK.
1"x3" Y. PINE STUDS
3/4" x 2 1/2" W. PINE STAVING.
SHELF
BERTH.
SHELF
4"x4" Y. PINE STRINGERS
L.W.L.
3/4"x3" Y. PINE
1 1/2" WHITE CEDAR PLANKING.
2"x6" CYPRESS.
6" WHITE OAK
1 1/2"x2" FRAMES WHITE OAK 9" C. TO C. STEAM. BENT.
FRAMES NOTCHED INTO SIDE KEEL PIECE
1 1/2" Y. PINE FLOOR TIMBERS ON EVERY FRAME.

Midship construction section for motor houseboat Que-Pee

"Nary a Quit for Nine Years"

October 13, 1920

Gentlemen:—It is with real pleasure I write you to state that the two cylinder "Frisbie" that furnishes the push for the "Buster" has performed the before mentioned push with *nary a quit for nine years.*

And if I hadn't forgotten to turn on the oil, my expenses would have been $3.15 less than $3.15, or nothing. As it is, I wouldn't swap it for a new one, because it couldn't be any better.

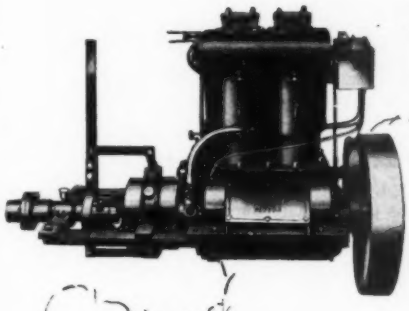
What it takes to push the "Buster" around, the "Frisbie's" got, and we look forward to getting it for years to come.

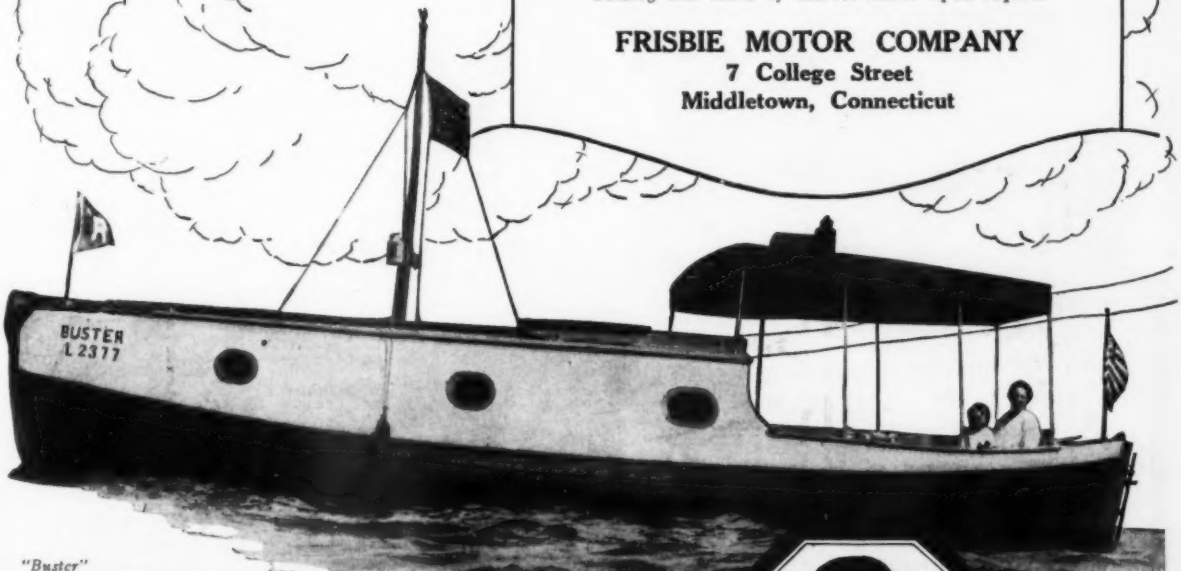
Yours truly,

(Signed) ALFRED J. KASTRUP.

Catalog and name of nearest dealer upon request

FRISBIE MOTOR COMPANY
7 College Street
Middletown, Connecticut





"Buster"
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Frisbie an' I

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Mr. Joseph Leyare, well known among boat owners as the proprietor of the former Leyare Boat Works of Ogdensburg, has been retained as designer and superintendent of the motor boat department.

The personnel of this organization combines experienced administrative officers and boat builders of unusual skill.

Let us figure on your 1921 boat.

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MOTOR BOAT LIGHTING AND IGNITION SYSTEMS

A proven product of 15 years' actual use by the Motor Boat Trade.

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4 TO 40 LIGHTS

Catalogue upon Request

THE A-C ELECTRICAL MFG. CO.
DAYTON, OHIO, U. S. A.

New Models and Motors

(*Continued from page 17*)

The present day motors come to the purchaser completely equipped with all accessories that are necessary.

Several of the new motors take advantage of the popularity of a certain type of well known automobile and make use of some of the parts which are used in this car. The claim is made that spare parts are readily obtainable throughout the country wherever an automobile is found. It is questionable whether this claim is a good one since it is not very likely that one will have to stop to buy a new cylinder casting or connecting rods or other parts of a like nature while off on a cruise.

The heavy oil motors are also making progress and among those displayed may be mentioned the Mianus Diesel type oil engine and the Dodge heavy oil engine. These machines are somewhat similar in general methods of operation but naturally differ in their various details. They are particularly suited for the heaviest class of working boat and can be made to operate successfully on any oil that will flow through the pipes. On account of their massive proportions vibration is eliminated and owing to their operating cycle electrical ignition devices are entirely dispensed with. These motors run as well under partial load as they do at full load. They have the advantage of low fuel consumption and low operating costs. On account of the fact that their compression pressures are not as high as the regular Diesel motor, water injection into the cylinders is unnecessary.

Several compact little generating sets are shown to take care of the requirement for electricity on the boat. These are direct connected units and are available in many sizes and varieties from the small 600 Watt Homelite set up to the large 4 cylinder gasoline engine driven sets made by the Universal Motor Company and the Winton Motor Works.

The list of motors which follows gives complete specifications for all the new motors produced during the year 1920.

Two-Cycle Marine Motors

Rated H. P.	Motor	No. of Cyls.	Bore & Stroke	R.P.M.	Wt.	2 or 3 Port	Ignition
2½	Caille	1	3¼x3½	800	140	2	J. S.
3	Capital	1	3½x3¼	800	120	3	J. S.
3	St. Lawrence	1	3¼x3½	900	100	3	J. S.
3½	Guarantee	1	3¾x3½	700	175	2	J. S.
4	Caille	1	3½x3½	800	150	2	J. S.
4	Easthope	1	3¾x5	650	230	H	J. S.
4	Gray	1	3½x3½	800	150	3	J. S.
4	St. Lawrence	1	3½x4	900	110	3	J. S.
6	Caille	1	4¾x4½	800	200	2	J. S.
6	Capital	1	4½x5½	600	285	3	J. S.
6	St. Lawrence	2	3¼x3½	900	160	3	J. S.
7	Capital	1	4½x4¼	800	160	3	J. S.
7	Easthope	1	6 x7	450	909	H	A. K.
7½	Guarantee	1	5 x5	500	500	2	J. S.
8	Caille	1	5¼x5	500	335	2	J. S.
8	Gray	2	3½x3½	800	275	3	J. S.
8	St. Lawrence	2	3½x4	900	190	3	Opt.
10	Capital	2	3½x3¼	1,200	160	3	J. S.
12	Capital	2	4½x5½	800	420	3	J. S.
12	Kahlenberg	2	5 x5	400	650	2	M. & B.
12	St. Lawrence	2	4 x4½	900	300	3	J. S.
12	St. Lawrence	3	3½x4	900	300	3	J. S.
14	Caille	2	4¾x4½	800	350	2	J. S.
15	Capital	3	3½x3¼	1,200	200	3	J. S.
18	St. Lawrence	3	4 x4½	900	...	3	Opt.
20	Caille	2	5¼x5	600	495	2	J. S.
20	Capital	2	4½x4¼	1,200	250	3	J. S.
20	Capital	4	3½x3¼	1,200	250	3	J. S.
30	Caille	4	4¾x4½	1,000	600	2	J. S.

Detachable Outboard Motors

Rated H. P.	2 or 4 Cycl.	Motor	No. of Cyls.	Bore & Stroke	R.P.M.	Wt.	Port	Ignition
2	2	Gierholtt	1	2¾x2½	800	55	2	M.
4	2	Amphion	2	2½x2½	1,200	80	..	M.

Four-Cycle Marine Motors

Rated H. P.	Motor	No. of Cyls.	Bore & Stroke	R.P.M.	Wt.	Location of Valves	Ignition
3½	Liberty Kid	1	3¾x4½	750	160	H	Opt.
4	Seattle Standard	1	3¾x4½	900	190	H	J. S.
4	Hess	1	3¾x4	900	225	L	M.
5	Carl	1	5 x6	400	410	L	A. K.
6	Enterprise	1	6 x8	420	1,500	H	M. & B.
6	Knox	1	5 x5¼	600	490	H	J. S.
6	Miller	1	5¾x6	500	500	L	M.
6	Peerless	1	5 x6	600	450	L	J. S.
7	Palmer	2	4½x4½	600	500	T	A. K.
7	Seattle Standard	1	5 x6	600	575	T	J. S.
8	Carl	1	6¾x8	350	750	L	A. K.
8	Enterprise	1	6¾x8	400	1,750	H	M. & B.
8	Liberty Kid	2	3¾x4½	750	260	H	Opt.
8	Philadelphia	1	6 x8	350	1,000	L	M. & B.
8	Seattle Standard	2	3¾x4	950	205	L	J. S.
10	Acadia	1	6½x8	450	1,200	..	Opt.
10	Evansville	2	5 x6	500	550	H	J. S.
10	Wright Reliable	1	6 x7½	450	1,280	H	M. J. S.
11	Carl	3	5 x6	500	650	L	A. K.
11	Vulcan	1	7½x8½	400	1,100	T	J. S.
12	Enterprise	2	6 x8	400	2,700	H	M. & B.
12	Gaffga	2	5 x6	600	900	T	M.
12	N. J. M.	4	3¾x4	1,000	450	L	M.
12	Peerless	2	5 x6	600	600	L	J. S.

(*Continued on page* 106)

Advertising Index will be found on page 118

MAKERS OF FINE YACHTS.

YACHTING THAT SATISFIES

55 ft. x 15 ft. x 3 ft. House Yacht.

This will be a big yachting year; why not enjoy the wonderful comfort of a houseboat? Economical in operation. A boat on which guests, owner and crew are all

SATISFIED

FOR SALE OR CHARTER

Two 85 ft. House Yachts are now in commission, and two 73 ft. House Yachts will be ready for early delivery. Write or phone for complete specifications.

20th CENTURY MOTORS

Continuous Satisfaction for Nineteen Years is our Record

Built in sizes:
2-Cyl.....15-20 H.P.
4-Cyl.....40-50 H.P.
6-Cyl.....65-75 H.P.
All 6½" Bore x 8½" Stroke

HEAVY DUTY TYPE

6 cyl. 65-75 H. P.

YACHTS AND HOUSE BOATS

NEW YORK YACHT, LAUNCH & ENGINE CO.
BUILDERS
MORRIS HEIGHTS, NEW YORK CITY.

OBERDORFER
BRONZE GEARED
PUMPS
The successful operation of your engine depends very largely on the efficiency of the cooling system, the oiling system and the fuel feed.
Equip your engines with the ever-reliable Oberdorfer Pumps and you can forget all about your cooling, oiling and fuel feed systems. Their action is entirely automatic—the speed of the motor determines the supply. A feature of utmost importance is the fact that the Oberdorfer will never over-feed nor under-feed. Oberdorfer Bronze Geared Pumps are standard equipment on Kermath, Scripps, Gray, Lathrop and other good marine motors.
Send at once for the Oberdorfer pump booklet.
M. L. OBERDORFER BRASS CO.
812 Water Street
Syracuse New York

MIAMI
REGATTA
1921
FEBRUARY
TENTH, ELEVENTH
and TWELFTH
The Seventh Annual Miami Regatta will be held on beautiful Biscayne Bay the second week in February.
A bigger, better regatta than ever before, more boats, more races plus Miami's wonderful weather. You must be there.
Write for full details, program, etc., and also ask for booklet describing and illustrating some of the wonders Miami offers as a vacation ground.
Miami Chamber of Commerce
Miami, Fla.

New Models and Motors

(*Continued from page* 104)

Four-cycle Marine Motors

Rated H. P.	Motor	No. of Cyls.	Bore & Stroke	R.P.M.	Wt.	Location of Valves	Ignition
15	Seattle Standard	2	4¾x6	600	700	T	J. S.
15	Vulcan	2	6½x7¼	475	1,350	T	J. S.
15	Wright Reliable	1	7½x9	350	1,780	H	M. I. S.
16	Enterprise	2	6¾x8	400	2,880	H	M. & B.
16	Frisbie	2	6 x6	500	700	H	J. S.
16	Philadelphia	2	6¼x8	375	2,000	L	M. & B
18	Acadia	2	5 x6½	850	800	..	J. S.
18	Carl	4	4½x5	750	900	L	A. K.
18	Scripps	2	4¼x6	900	700	L	M.
20	Acadia	2	6½x8	450	1,760	..	Opt.
20	Enterprise	2	7½x9½	360	4,500	H	M. & B.
20	Erd	4	4 x6	1,000	...	H	M.
20	Foreman	2	5½x7	500	1,250	H	M. & B.
20	Knox Valve-in-Head	4	3½x5	800	...	H	M. I. S.
20	Peerless	4	4 x6	600	750	L	M.
20	Reliable Heer	2 opp.	6 x6	600	850	H	M.
20	Seattle Standard	2	6 x7	525	1,250	T	J. S.
24	Peerless	2	5¾x7	600	1,200	T	M.
25	Erd	4	4 x6	1,000	800	..	M.
25	Knox	2	7 x8	550	1,900	L	J. S.
26	Waukesha	4	3¾x5¼	1,000	615	L	M.
30	Acadia	3	6½x8	450	2,200	..	Opt.
30	Enterprise	2	9 x11	320	4,750	H	M. & B.
30	Enterprise	3	6¾x8¼	400	5,000	H	M. & B.
30	Erd	4	4¼x6	1,000	...	H	M.
30	Wright Reliable	2	7½x9	350	1,780	H	M. I. S.
31	Waukesha	4	4 x5¾	1,000	825	L	M.
32	Mianus	4	6 x8	400	2,750	T	Opt.
34	Capitol	4	4½x5½	1,000	600	L	A. K.
35	Aeromarine	4	4¾x6½	900	1,200	..	M. I. S
35	Disbrow	4	4¾x6	1,000	1,130	T	M.
35	Erd	4	4½x6	1,000	800	H	M.
35	Enterprise	3	7½x9½	300	5,500	H	M.
35	Gray	4	4 x6	800	800	H	M.
35	Niagara	4	4¾x5½	1,000	995	T	J. S.
35	Peerless	4	5 x6	600	850	L	M.
36	Carl	4	6¾x8	400	2,990	L	A. K.
36	Waukesha	4	4¾x5¾	1,000	840	L	M.
40	Acadia	4	6½x8	450	2,600	..	Opt.
40	Acadia	4	5 x6½	1,050	1,200	..	J. S.
40	Erd	4	4½x6	1,000	...	H	M.
40	Kermath	4	4½x6¼	1,200	1,350	L	M.
40	Waukesha	4	4½x6¼	1,000	910	L	M.
45	Enterprise	3	8¼x10¾	340	6,750	H	M. & B.
45	Erd	4	4¾x6	1,000	...	H	M.
45	Gray	4	4¾x6	800	1,000	H	M.
50	Gaeth	4	5½x8	800	2,000	T	M.
50	Peerless	4	5¾x7	600	1,700	T	M.
50	Waukesha	4	5 x6½	1,000	980	L	M.
55	Enterprise	3	9 x10½	320	9,200	H	M. & B.
55	Reliable Heer	2 opp.	9½x11	350	4,300	H	M. & B.
60	Enterprise	3	9 x11	320	10,000	H	M. & B.
60	Foreman	6	5½x7	500	2,250	H	M. & B.
60	Standard	4	6½x8	600	3,200	L	Dbl.
65	Fay & Bowen	6	5 x6¼	1,000	1,480	T	M.
75	Gaeth	6	5½x8	600	3,000	T	M.
75	Sturtevant	4	4½x6	1,600	775	L	M.
80	Enterprise	3	10 x12½	320	12,300	H	M. & B.
90	Standard	6	6½x8	600	...	L	Dbl.
90	Wisconsin	6	5¾x7	800	1,615	T	M.
125	Peerless	4	5 x7	1,650	700	H	M.
150	Standard	6	8½x11	400	...	L	M. & B.

More Cabin Space Available

(*Continued from page* 33)

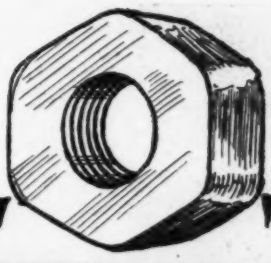
head room and other space inside by converting the sloop into a combination of the low, raised deck type with small cabin above. This plan gives full head room in the center where needed most and large spaces with reasonable height under the decks and forward for berths, stowage, lockers, etc., while the raised portion is not high enough to make the boat appear top heavy or clumsy, the ship-shape appearance of the hull being fully retained.

This plan contemplates following along a seam in the planking, just below the upper clamp, and sawing off the frames and stem. Then just aft of the cabin trunk or wherever desired the deck would be cut across. Then this forward section of deck and cabin trunk would be raised to the predetermined height and braced in position. The stem would be spliced out and short frames fitted alongside the old ones and fastened through several strakes of planking as well as to the old frames. The intervening space would be planked up, and a fender strake fitted to carry out the original sheer line and a clamp fitted inside, taking the place of the one removed by raising the deck.

In doing this job it would probably be necessary to remove the sheer strake around the raised portion so as to make it convenient to fit the short frames and securely fasten them to the clamp. Up forward where the sections flare considerably it will be necessary to use frames of extra molded depth at the head in order to carry out the natural curve of the sections and at the same time use the clamp and shelf as fitted and fastened to the deck beams.

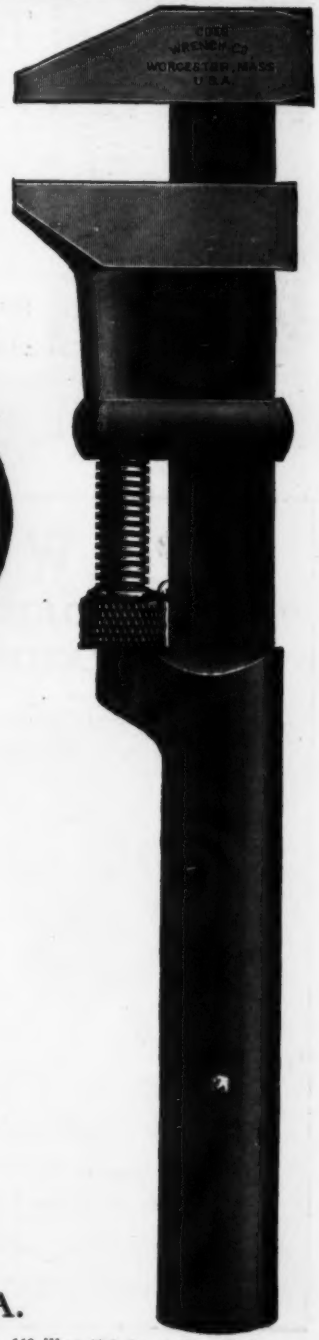
C. H. C., Saginaw, Mich.

Advertising Index will be found on page 118



Ever Have This Happen to You?

Coes Wrenches are made to fit all the time. They have the backbone to do it. The jaws will not spread and wipe off the corners.



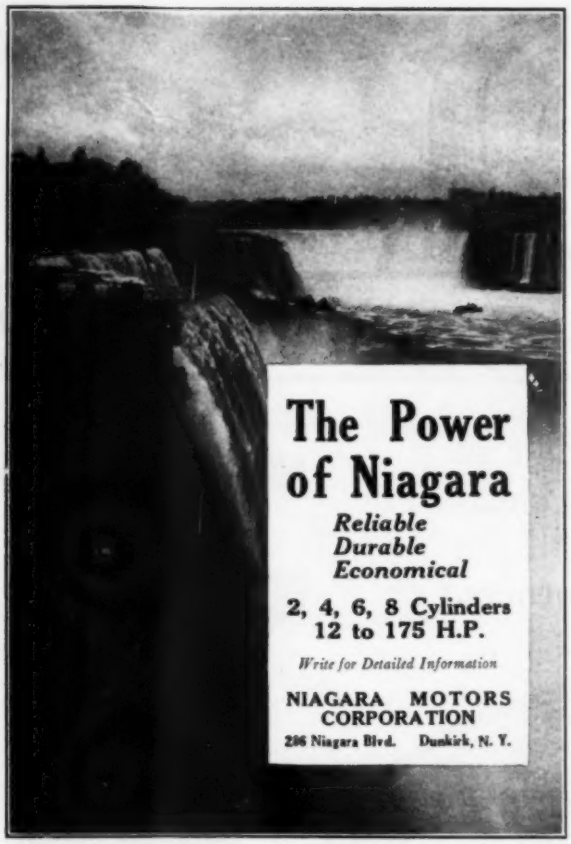
TRADE MARK
REG. U.S. PAT. OFF.
NO. 64696

Coes

The steel handle model is made in seven sizes, from 6" to 21". Five solid parts make up the wrench. It is the logical engine room and machine shop tool. Why not ask your jobber? Or your dealer? Or us.

COES WRENCH COMPANY

Worcester Mass., U.S.A.



POWELL
"ADJUSTO"
GENERATOR-VALVE

Made in sizes ⅛ to 2″ inclusive.

Write for "Adjusto" Circular.

WE MANUFACTURE
Gasoline Cocks—Strainers—Priming Cups
Oil Cups—Grease Cups—Lubricators

The Wm. Powell Co.
CINCINNATI, OHIO

A Remarkable Boat with a Remarkable History

(*Continued from page* 19)

Now, a little history of the achievements of this famous craft. In her maiden days there was considerable sportsmanlike rivalry engendered between her former owner, Mr, A. Y. Gowan, and Mr. Carl Fisher, of Indianapolis, who owned *Raven*, which culminated in a race at Put-in-Bay on Lake Erie at the time of the Perry Centennial Celebration in 1913, the stakes of which race were that the loser should pay all the expenses of a yachting cruise to Florida and return.

The boat at that time was equipped with medium duty engines as against high speed engines of *Raven*, but at that time there was no great difference in their speed, but Mr. Gowan, to make doubly sure, inasmuch as there were no restrictions as to engines, and as the stakes were so large, had two 8-cylinder high speed Speedway engines installed, with which he was the easy victor at the then-remarkable express cruiser speed of 33 miles per hour.

In addition to winning this race, she held the record for the long distance run from Mackinaw Island to Cleveland, and was by far the fastest express cruiser of her size.

In 1914 she was purchased by S. B. Eagan, of Buffalo, after he had looked over practically all the available boats in the East, and found her to be in such excellent condition with new medium duty Speedway engines just installed, that she was practically like a new boat, having been kept always under cover,—in a "glass case," as the saying goes.

The succeeding years proved the excellence of Mr. Eagan's judgment. In his far-sightedness he immediately set to work and purchased a large parcel of harbor property in Black Rock Harbor, Buffalo, had same dredged, piled and sheathed, and constructed a large boathouse with a power lifting steel dock, machine shop for maintenance with bunk room for his crew and garage for his car, and constructed, in addition, 27 other houses for his fellow yachtsmen, who, up to that time, had no suitable quarters, to likewise enable them to secure splendid facilities to house their craft at the same square foot yearly rentals as he charged against himself,—for proper maintenance, in its fullest sense, is the secret to success in the boating game, and the foundation to maintenance is proper housing and working facilities.

Lidwina III made many a wonderful cruise through the Great Lakes in foul weather and fair, and under the skillful seamanship of her owner and captain, Mr. Eagan, has always come through without a scratch; cruises through the Great Lakes, especially into Georgian Bay,—that wonderful body of water studded with 30,000 islands in all their primeval and virginal beauty and grandeur—entered mainly through the famous Cove Island passage from Lake Huron, whose pinnacle rocks and limestone reefs have been the undoing of many a good merchantship, but whose clear, crystal waters with white bottom clearly discernible at 30 ft. has been the salvation of many a cautious yachtsman running only in that region during daylight.

But of all the splendid cruises through river, lake and bay, none ever approached, in point of interest, daring and achievement, that of the year now fast growing to a close.

Starting out on the 14th of August, fully equipped and heavily laden for an extended five-weeks cruise to Georgian Bay from Buffalo, through Lake Erie, Detroit River, visiting the Detroit Yacht Club, thence continuing on through Lake St. Clair, stopping at the "Old Club", and then on through St. Clair River to Lake Huron and the port of Goderich on the Canadian Shore, then on again almost due north through Cove Island passage to that haven of refuge, Tobermory Harbor, at the extreme point of the Saugeen Peninsula.

Ranging from this harbor, equipped with a powerful wireless station, through which communication could be kept with the rest of the world, visiting Fitz William Island, clothed with its virgin timber, for fishing, and returning to Detroit in time to attend the Gold Cup Regatta, and enter the Sallan Trophy Handicap Endurance Race of 67½ miles, consisting of three heats of 22½ miles each, starting off the Detroit Yacht Club to and around the Lightship on Lake St. Clair and back to the Club.

Lidwina III entered against a field of 12 competitors and won handily.

This performance was the more remarkable in view of the fact that the yacht was just homeward bound on an extended fishing cruise of some 2000 miles, and nothing was done, either to the engines or boat, to increase her speed, and the winter previous, only the exhaust valves had been ground after cruising over 3000 miles.

Returning with the Sallan Trophy, a magnificent example of the silversmith's art, wonderfully wrought and etched with the facsimile of all the boats participating in last season's race, the Cleveland Yacht Club was visited and the trophy exhibited

(*Continued on page* 110)

Advertising Index will be found on page 118

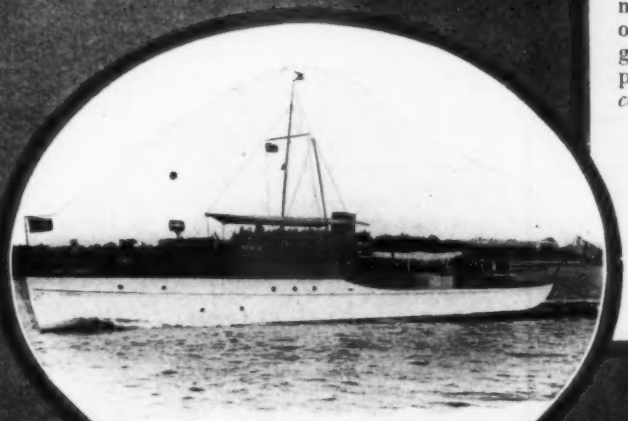
DIESEL ENGINES for PLEASURE YACHTS

IDEALIA, 84′ x 14′ x 3′, is powered with a 120 H.P. NELSECO Diesel engine which drives her 14¼ miles per hour, using only six gallons of fuel oil per hour. It would take 15 gallons of gasoline to produce the same power, *at approximately ten times the cost.*

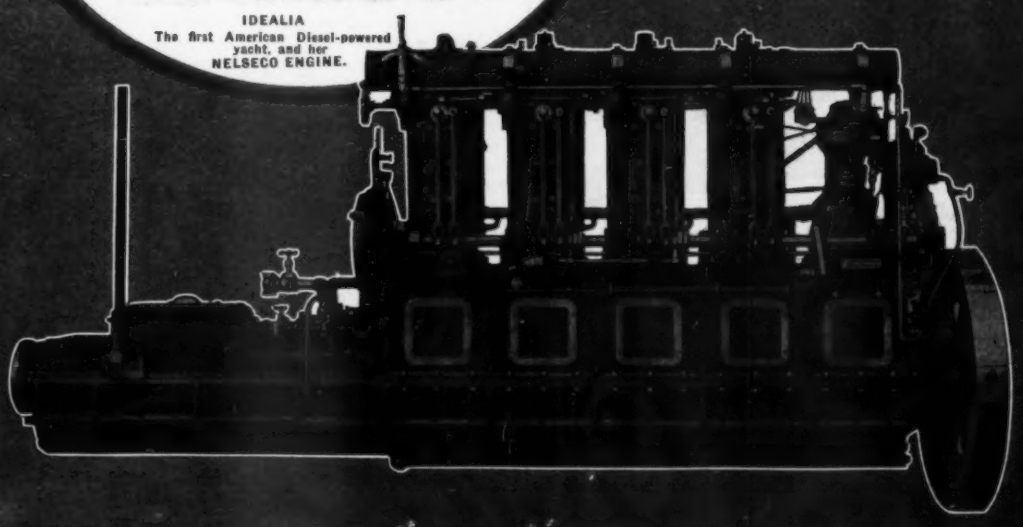
Everyone concedes the advantages of Diesel engines for commercial boats. The case of Idealia and other successful installations prove that NELSECO engines are equally suitable for substantial pleasure yachts and large cruisers.

Let us send you complete information. Give us the details of your boat.

THE NEW LONDON SHIP & ENGINE COMPANY
GROTON, CONN., U. S. A.



IDEALIA
The first American Diesel-powered yacht, and her NELSECO ENGINE.

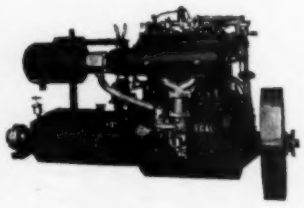


Sturtevant
(REG. U. S. PAT. OFF.)
75 H. P. LIGHT WEIGHT ENGINE
AN UNUSUAL ENGINE
FOR UNUSUAL BOATS
If an engine of the highest quality—one which is efficient, reliable, and clean-cut in appearance—interests you, investigate the Sturtevant E4.
Built on special order during the past six years.
Now standardized and ready for general distribution. Catalog No. 26826
PARR-LOICHOT ENGINE CORP., Agents
380 Canal Street New York City
B. F. STURTEVANT COMPANY
HYDE PARK, BOSTON, MASSACHUSETTS

REGAL

—FOUR CYCLE—
MARINE ENGINES

FOR nineteen years have led the field in the design and construction of reliable and economical power plants. Sizes 2 h.p. to 50 h.p. One to four cylinder. Built to operate with gasoline distillate or kerosene.



REGALITE—the new Electric Lighting Plant, 2 h.p. air cooled motor, ¾ k.w. generator. Write for information.

REGAL GASOLINE ENGINE CO.
74 West Pearl Street COLDWATER, MICH.

A Remarkable Boat with a Remarkable History

(*Continued from page* 108)

to the admiring yachtsmen; next day the Erie Yacht Club, and its excellent hard-working, sportsmanlike Commodore Scott, who volunteered to escort the trophy-winning yacht to Buffalo with his splendid cruiser Henrietta II.

The time of departure for Henrietta II was set at eight A. M., and her running speed at 12 miles, and for Lidwina III at nine A. M., with running speed at 14 miles, so as to enable both boats to meet off Buffalo Harbor at the same time, where they were to be welcomed by the City Officials, who were to come out aboard the fire tug, by the Buffalo Hotel Association members, who had chartered a large hydro-aeroplane, and by the members of the Buffalo Launch Club, under whose colors Lidwina III sailed.

But the day prior to the start, storm signals were flying from the government station, and a stiff wind was blowing, Lidwina III had come down from Cleveland through a heavy sea, and to say the least, conditions were far from promising for an easy passage.

But the die had been cast, and Buffalo advised of the time the yacht was due, so through she must come, if physically possible. At the appointed time each weighed anchor and proceeded down the Lake, and as Lidwina III progressed, the sea and the wind grew greater and stronger, so that at the end of three hours, as the yacht passed Dunkirk, the captain and owner, Mr. Eagan, and his friend and mate, Mr. Thomas Sullivan, and crew, realized they had to battle for their lives; the waves were running 16 to 18 feet high, and it was necessary for the engineer, Mr. Weimer, to stand by the engine and act as sort of a "human governor", closing the throttles as she slid down the side of these enormous waves to prevent her from plunging into the side of the next one, and open up the throttles as she reached the valley to prevent the following wave from overwhelming her.

Although the yachts passed within two miles, neither sighted the other, and a freighter which was passed three miles off would completely disappear from view as she sank in the trough of the waves,—so great was the sea!

Lidwina III made the 73 mile run, which usually takes her 5 hours, in 5 hours and 45 minutes, passing Henrietta, which arrived off Buffalo Harbor one hour later.

But the Reception Committee were nowhere in evidence on the Lake. The fire tug dared not put out from behind the breakwall, and the hydro-aeroplane could not leave her moorings; as Lidwina III progressed down the Niagara River she was met by the Reception Committee of hotel men and yachtsmen aboard Mr. Humphrey Birge's 62 foot yacht, Miss Liberty II, who were greatly surprised and delighted to see the yacht come through, safe and sound, the biggest storm of the season.

This remarkable performance places an AA1 classification on the boat, her engines and her crew.

Prefers Glass Bottles

(*Continued from page* 30)

degrees cooler than the surrounding air. It is preferable that the cooler be kept in the shade and in such a position that there is a current of air constantly passing around it. This scheme is based on the principle of cold by evaporation. As the water evaporates from the burlap wrapping, heat is absorbed by the evaporated water. The jug and contents being the nearest source of heat, gives up its heat in the process of evaporation, as a result its temperature is lowered. Proof? Have you ever noticed the temperature of the carburetor not drawing preheated air? The purer the water the better it will keep under any conditions. For this reason when contemplating a long cruise away from a source of fresh water supply, it would be well to order a couple of five-gallon bottles of distilled water from the local bottling works, and care for them as described above. Distilled water tastes a little flat unless aerated and then it would absorb impurities from the air. This flat taste can be easily overcome by the addition of lemon juice or a wild cherry extract. When distilled water is unavailable, boiling the water and bottling it while hot will improve its keeping qualities considerably. On cruising boats which are used only over the week ends and for a cruise or two each year, the installation of a fresh water tank cannot be advised. It is practically impossible to remove all the cold water and thoroughly cleanse the tank and piping without dismantling the whole installation. Water is left standing in the tank from week to week and the inside of the tank

(*Continued on page* 112)

Advertising Index will be found on page 118

A Strong Bridge From Power To Propeller

JOES Reverse Gear is like a strong bridge spanning the gap between the power of your engine and the blades of your propeller—strong enough to carry the heaviest load your engine can put upon it.

Back and forth, forward and reverse, a thousand times a day, smoothly and efficiently, with absolute reliability Joes Gear carries the power to make your boat obey your will.

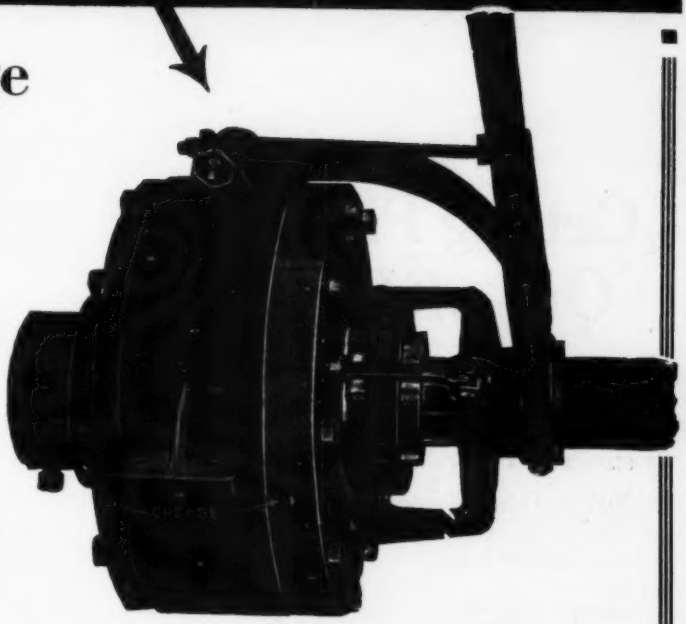
Though built primarily for heavy duty work boat service, Joes Reverse Gear quickly won high favor for racing and speed boat service also, because of its unusual strength and dependability.

Joes Reverse Gears are now supplied for every need and speed.

Write for Catalog

Contains full information about Joes Duplex Drive and High Power Gears, One-Way Clutches and Safety Rear Starters. Also ask for Special Folder on

Joes Husky for big Diesel and Semi-Diesel engines.



JOES REVERSE GEAR

80%-88% Reverse Speed Ratio

MEMBER

The Snow & Petrelli Mfg. Co., 156-B, Brewery St., New Haven Conn.

Agents

New York City—Sutter Bros., 44 Third Ave., Service Station Foot of East 92nd St., Brooklyn.
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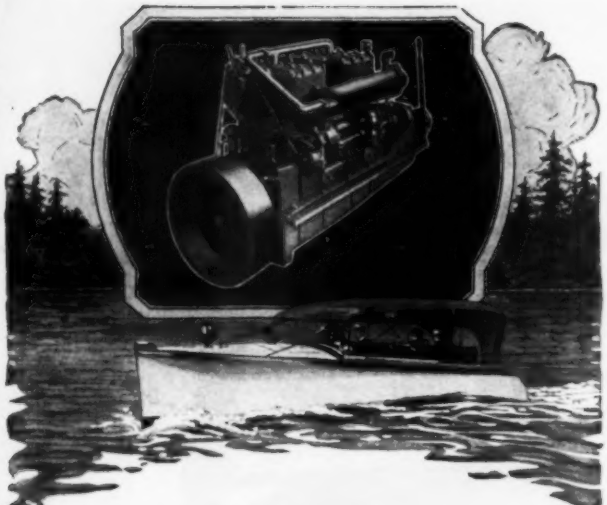
Chicago, Ill.—W. L. Masters & Co., 229 N. State St.
New Orleans, La.—Arthur Duvic's Sons, 130 Chartres St.
Seattle, Wash.—Pacific Marine Engine Co.
Southern Calif.—Fellows & Stewart, Inc., Wilmington.
San Francisco—A. G. Hebgen, 440 Market St.
Toronto, Canada—A. R. Williams Machinery Co.
Montreal, Canada—The Pyke Motor & Yacht Co.
Newfoundland—John Barron & Co., 241 Water St., St. Johns.
England—J. King & Co., 10 Church Row, Limehouse, E. London.
Norway—Arendahl Motor & Machine Co., Arendahl.
Turkey—Société Générale d'Automobiles, Constantinople.



Getting Pleasure Out of Power

Glide lazily along your favorite water-lane or head for the open sea for a speed spin—always that steady stream of dependable Doman power.

Put a Doman in a good hull and you've struck the real combination for boating pleasure. Quick, powerful response to the slightest touch of the throttle. No racking vibration at full speed.

Extra life and greater power secured by oversize waterjackets, great bronze-backed bearings, giant valves and a leak-proof oiling system. Special kerosene burning equipment optional.

Write for Doman Specifications before buying a new boat or re-engining your old one.

THE H. C. DOMAN CO.

STA. 818

Oshkosh, Wisconsin

DOMAN

OSHKOSH, WIS

Prefers Glass Bottles

(*Continued from page* 110)

will soon get into such a condition that could you see it you would not drink water from it. If you must have water tanks and running water, use an oak cask for the tank and provide a drain at its lowest point. If possible locate the tank below the floor where it will be cool. Run a filler pipe of galvanized iron to the deck and distribute the water through galvanized pipe as desired. On the average cruiser one outlet in the galley will be found ample unless you desire to install a coil in the ice box for drinking water. The water is forced to the outlets by air pressure supplied by a hand pump or from the whistle tank, except where an accumulator or collector on the cylinder is used to supply the pressure. The gas from the accumulator would quickly spoil the water, making it unfit for use. Connections may be made in the wood by boring a hole the size of the inside of the thread and screwing in the pipe without tapping the hole, and the connection will be tight. A tire valve or other air check is necessary in the air supply line. All outlets should be self-closing, spring cocks to prevent wasting the water, and the filler cap as well as all joints and connections should be airtight. In making up the joints use red lead or pipe joint compound. An air pressure of approximately 45 pounds per square inch will force water 100 feet above the tank. By allowing sufficient air space a pressure of 25 pounds will empty the tank. However, for long trips away from a source of supply, it would be advisable to fill the tank and restore the pressure as required until the tank is about three-quarters full. A pressure of 20 pounds on a half tank will blow through the outlets after the water is gone. With a little practice one will soon get accustomed to determining the amount of water in the tank by the pressure, or a gauge could be very easily fitted.

W. B. M., Newburgh, N. Y.

Using Standard Pipe for Bushings

By W. F. Schaphorst

It is a good thing to know that bushings can be made out of standard pipe. Many pipe-fitters don't know that it can be done. Or if they know that it can be done they don't know the correct size of drill to use for tapping. I have always known that it can be done and have occasionally made bushings out of pipe, but each time I found it necessary to first look into my handbook for the drill size to use and that is so much trouble that it is frequently easier to go to the store and buy a new bushing. Recently, though, it has been very difficult to buy bushings in stores on account of shortage of all pipe fittings, hence I feel that the following information should be of much value. I have collected all of the data together for all bushings that can be made out of ordinary sizes of extra heavy and double extra heavy piping.

To bush from ¼" to ⅛", for example, get a piece of ¼" extra heavy pipe sufficiently long for cutting the outside thread. Then cut the end off to the desired length, drill or ream with a 21/64" drill (diameter of drill 0.328") and then tap with a ⅛" pipe tap. That's all there is to it.

The table enclosed tells the complete story for all ordinary sizes. Note that in one case, ¾" to ¼", the internal diameter of ⅜" extra heavy pipe is such that no drilling is necessary.

Also note that in bushing from ½" to ⅜" either extra heavy or double extra heavy piping can be used.

To Bush From	Use This Size of Pipe	Use This Size Drill or Reamer
¼" to ⅛"	¼" Extra Heavy	21/64" Drill = 0.328"
⅜" to ¼"	⅜" Extra Heavy	None
½" to ⅛"	½" Double Extra Heavy	21/64" Drill = 0.328"
½" to ¼"	½" Double Extra Heavy	27/64" Drill = 0.422"
½" to ⅜"	½" Double Extra Heavy	9/16" Drill = 0.562"
½" to ⅜"	½" Extra Heavy	9/16" Drill = 0.562"
¾" to ⅜"	¾" Double Extra Heavy	9/16" Drill = 0.562"
¾" to ½"	¾" Double Extra Heavy	11/16" Drill = 0.688"
1 " to ¾"	1 " Double Extra Heavy	29/32" Drill = 0.907"
1¼" to 1 "	1¼" Double Extra Heavy	1⅛" Drill = 1.125"
1½" to 1 "	1½" Double Extra Heavy	1⅛" Drill = 1.125"
1½" to 1¼"	1½" Double Extra Heavy	1 15/32" Drill = 1.463"
2 " to 1½"	2 " Double Extra Heavy	1 23/32" Drill = 1.72"
2½" to 2 "	2½" Double Extra Heavy	2 3/16" Drill = 2.187"
3 " to 2½"	3 " Double Extra Heavy	2 9/16" Drill = 2.562"
3½" to 3 "	3½" Double Extra Heavy	3 3/16" Drill = 3.187"
4 " to 3½"	4 " Double Extra Heavy	3 11/16" Drill = 3.688"
4½" to 4 "	4½" Double Extra Heavy	4 3/16" Drill = 4.187"

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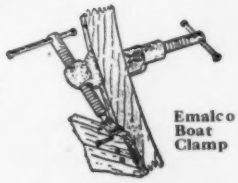
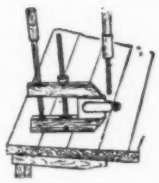


Emalco Boat Clamp

EMALCO MARINE HARDWARE

New England Headquarters for Motor Boat Supplies



Emalco Universal Clamp

Maxim Silencer

Anchors
Batteries
Bearings
Bells
Bilge Bailers
Binnacle Lamps
Blocks
Boat Hooks
Boat Scrapers
Bolts

Calking Irons
Carburetors
Chain
Clamps
Clocks
Code Signals
Coils
Compasses
Cushions

Electric Lights

Fenders
Flags
Fog Horns

Gauges

Hooks
Horns

Lamps
Lighting Outfits
Locks

Magnetos
Mufflers

Nails
Nuts

Padlocks
Paint Brushes
Paints
Piston Rings
Polish
Port Lights
Propellers
Pulleys
Pumps

Rope

Screws
Sea Cocks
Seam Composition
Search Lights
Shackles
Shafting
Signals

Socket Wrenches
Spark Plugs
Speed Indicators
Sponges
Steering Wheels
Stoves
Strainers
Switches

Tanks
Tiller Rope
Torches

Varnish

Washers
Wheel Pullers
Whistles
Windlasses
Wrenches

and everything else for your boat.

Write today for EMALCO Catalog if you want the best hardware at the most reasonable price. Export orders promptly attended to.

MALONE HARDWARE COMPANY

"WHERE THAT DOLLAR STRETCHES"

378 Atlantic Ave. Near Rowe's Wharf BOSTON, MASS.

STANDARD

"All the Name Implies"

A Successful *for Successful*

A GOOD hull, a good engine and a good reverse gear are the first essentials of a successful boat.

Altogether too many motor boats fail to give their owners the complete satisfaction they are entitled to expect because their service is frequently interrupted by petty annoyances caused by a poorly designed, poorly made or poorly adjusted reverse gear. Complete failure in the gear is serious but it is even more annoying to have a gear that heats up, wears noisy, throws oil or requires constant attention to keep it working right.

The Gear that Never Fails

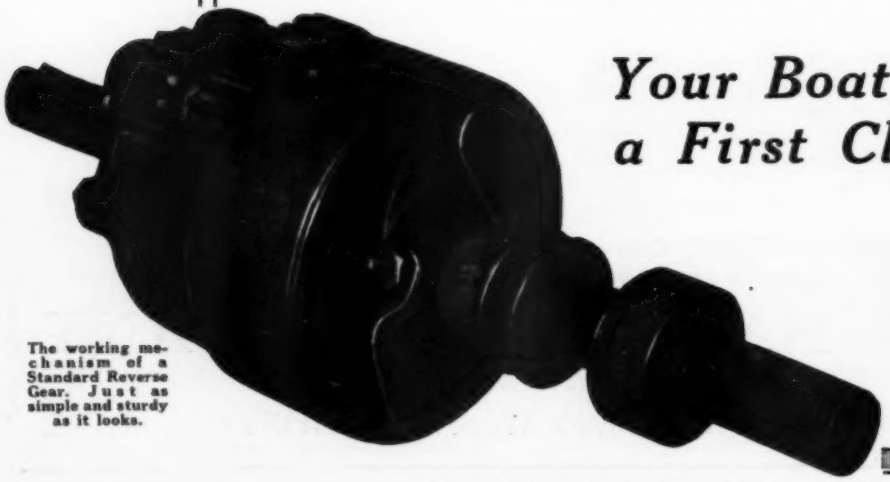
In designing and building Standard Reverse Gears we have always kept before us the aim to produce a gear that will relieve the boat owner of all trouble and anxiety. We could build them cheaper, we could save money at many points in their construction, but we could not improve them in any way that would add to their dependability.

Where Standard Reverse Gears Are Made

We are proud of the reputation Standard Gears have earned. We spare no effort or expense to maintain their quality. We are just as anxious as the buyer that every Standard shall serve him to his complete satisfaction.

Standard Reverse Gears are built entirely in our own plant, one of the best equipped machine shops in Detroit, the city of up-to-date automotive factories. Every facility is provided for building these gears economically in quantity, with every part machined to unusual accuracy. The machine tools in the Standard factory, and the men who operate them, are the very best the country affords.

If you could come to Detroit and inspect this factory, see the gears in process of manufacture and study their construction, we are satisfied that you would quickly decide that the Standard is the best gear you can buy.



The working mechanism of a Standard Reverse Gear. Just as simple and sturdy as it looks.

Your Boat Deserves a First Class Gear

Install a STANDARD this season

Advertising Index will be found on page 118

Reverse Gear
Motor Boats

STANDARD

"All the Name Implies"

MORE than 30,000 Standard Reverse Gears are now in service. The practicability of their design was demonstrated years ago in the one and only real test—service. We have improved them from time to time wherever improvement was found possible. Today the Standard is a real standard because it has proved its merit in thousands of installations embracing every type of boat and every class of service.

There are certain definite reasons why you should specify the Standard the next time you select a reverse gear. In addition to its dependability and the quality of its construction, consider the Cleanliness, Durability, Quietness, Compactness, Simplicity, Easy Adjustment and Smooth Operation.

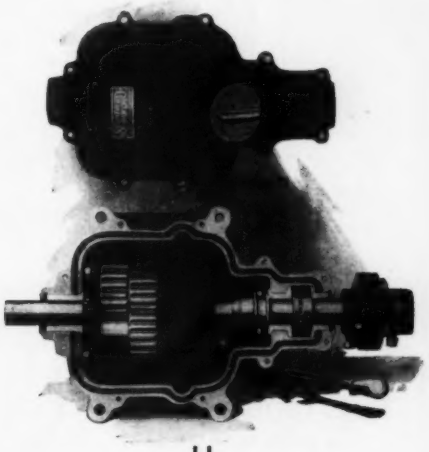
Cleanliness is most important. You can never be satisfied with a gear that throws oil about the boat and soils your clothes. The Standard Gear is completely enclosed and oil tight. The grease can't work out and dirt can't work in. Oil traps at the end of each bearing return surplus oil to the case.

The oil tight case permits us to run the entire mechanism in a bath of oil. It is so well lubricated that metal-to-metal contact never occurs—all working surfaces are constantly separated by a film of oil. This insures Durability and Quietness. Accurate machine work makes the gears run together quietly in the first place and perfect lubrication keeps them that way.

Large friction surfaces, accurately ground, make the clutches take hold smoothly and hold on to the load without slipping or heating up. Adjustment can be made on the outside of the case.

We believe you will find that the Standard meets your requirements in every respect. Let us prove it to you.

Write today for catalog and prices.



Note the oil groove and packing which makes the case absolutely oil-tight. Note also the ball thrust bearing at the rear, enclosed within the case and running in oil bath.

"A remarkably clean-cut gear." Complete, compact, self-contained. All that a reverse gear should be.

Standard Gear Company
5928 Commonwealth Ave.
DETROIT, MICH.

Cable address
"STANGEAR"

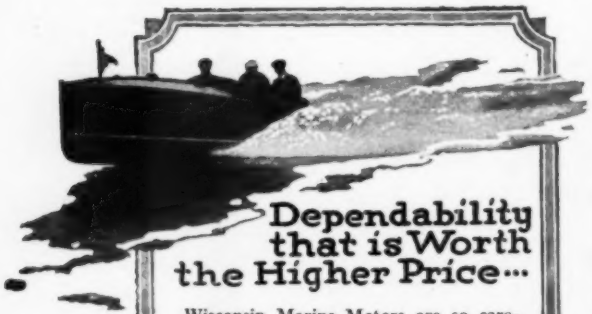
AS your compass guides you Safely to port, so the WC guides you to Dependable Motor Boat Fittings. The

WC Oil Compass

is constructed on scientific principles by skillful workmen. Its action, accuracy and steadiness are guaranteed under all conditions. Built to withstand the jars of power craft, the dial is adjusted to remain steady in a sea way and responds quickly to a change in direction. Every Compass carefully tested before shipping. 2, 2½, 3, 4 and 5 inch dials.
At your dealer's or write us.

Send 20c in stamps for celluloid Course Protractor. "Compass Talks and Tests" sent free. Tells how to box the compass, contains deviation tables, and other practical information for compass users.

WILCOX, CRITTENDEN & CO., Inc.
4 South Main Street
Middletown, Conn.



Dependability that is Worth the Higher Price···

Wisconsin Marine Motors are so carefully fitted, adjusted, run in, tested and inspected that they are *operation-perfect* when they leave the shops—*ready to run* when installed.

This adds to *our* cost, but ultimately *your* cost is far less because you get an engine that will run for months without attention—and has that dependability that makes your boat safe under all conditions.

Write for Specifications

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Station A, Dept. 302 Milwaukee, Wis.

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New Ideal Book

Volume III of the Ideal Series Twelve Complete V-Bottom Designs

By William H. Hand, Jr.

Prepared Expressly for MoToR BoatinG

This new book is the most valuable one ever published for the amateur builder or anyone desiring to have a V-bottom boat built by his own builder.

The plans contain outboard profile, lines, inboard, construction and interior arrangement plans, sectional views and complete table of offsets. Accompanying each design is a description of the boat and a full set of specifications taking up step by step each feature of the boat's constructions, how it should be built and the proper material to use.

Plans and specifications of the following boats are included: Edith, a 15-foot runabout; Jane, an 18-foot runabout; Katherine, a 30-foot cruiser; Dorothy, a 25-foot runabout; Zenith, a 25-foot cruiser; Cyclone, a 36-foot auxiliary; Eclipse, a 40-foot express cruiser; Magnet, a 28-foot cruiser; Tornado, a 45-foot auxiliary schooner; Broncho, a 29-foot cruising runabout; Shark, a 21-foot utility runabout; Claire, a 36-foot express cruiser.

Price of Twelve Complete V-bottom Designs $2.00

(If ordered with the 2 other volumes of the Ideal Series, the price of the 3 books will be $5.00.)

MOTOR BOATING
119 West 40th Street New York, N. Y.

Advertising Index will be found on page 118

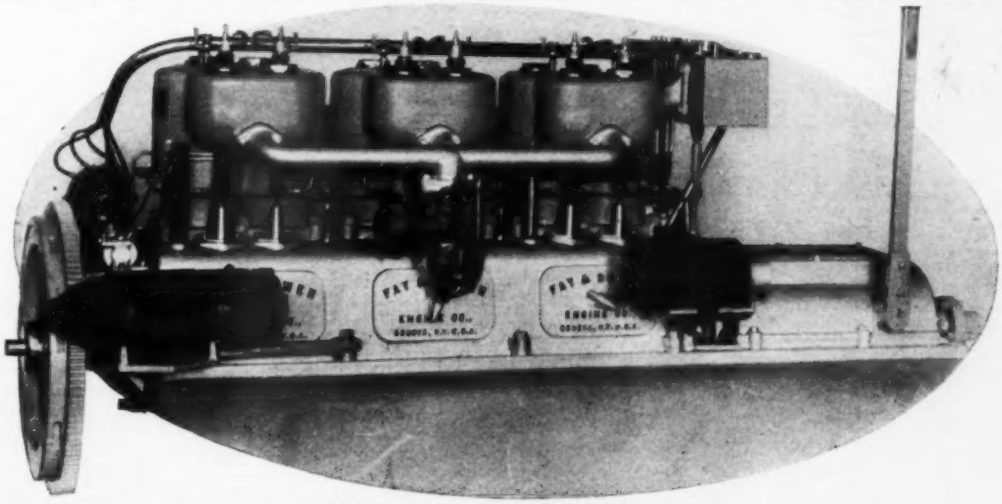
THE MEN WHO RUN THEM ARE THE MEN WHO KNOW

Water Witch, 54 x 10.
Owned by Richard Menzel, Esq., 508 Granby St., Norfolk, Va.
Powered with Fay & Bowen Model L-64

We quote from letters written us by Mr. Menzel dated Sept. 14 and Sept. 18, 1920

"I have just returned from a two months' cruise as far east as Marblehead and I cannot praise engine enough for its consistent and perfect behavior on this long cruise, on one occasion running twenty hours without ever missing a beat."

"The tests to which I subjected your engine were severe, the boat most always pitching in a sea and the engine at all times ran without a miss. I could not help but enjoy that feeling of security a good engine only can give."



Model L-64, 6-Cyl., 5 x 6¼, with Electric Starter

Fay & Bowen Engine Company

104 Lake Street **GENEVA, N. Y.** **U. S. A.**

NEW YORK: 44 Third Ave., at 10th St., Sutter Bros., Representatives.
PHILADELPHIA: 116 Walnut St., Marine Equipment & Supply Co., Representatives.
BOSTON: 100 Atlantic Ave., C. B. Hamblen & Co., Representatives.
CANADA: Brockville, Ont., St. Lawrence Engine Co., Representatives.

Universal MARINE MOTOR

Dependable as the Tide

Specialization in building one type of marine motor has developed unusual skill in every department of production. The Universal 9-12 H.P. motor has long been recognized all over the world as a reliable power plant for boats of any type up to 30 ft. Its smooth, masterful delivery of power has made it the chosen favorite of experienced boatmen.

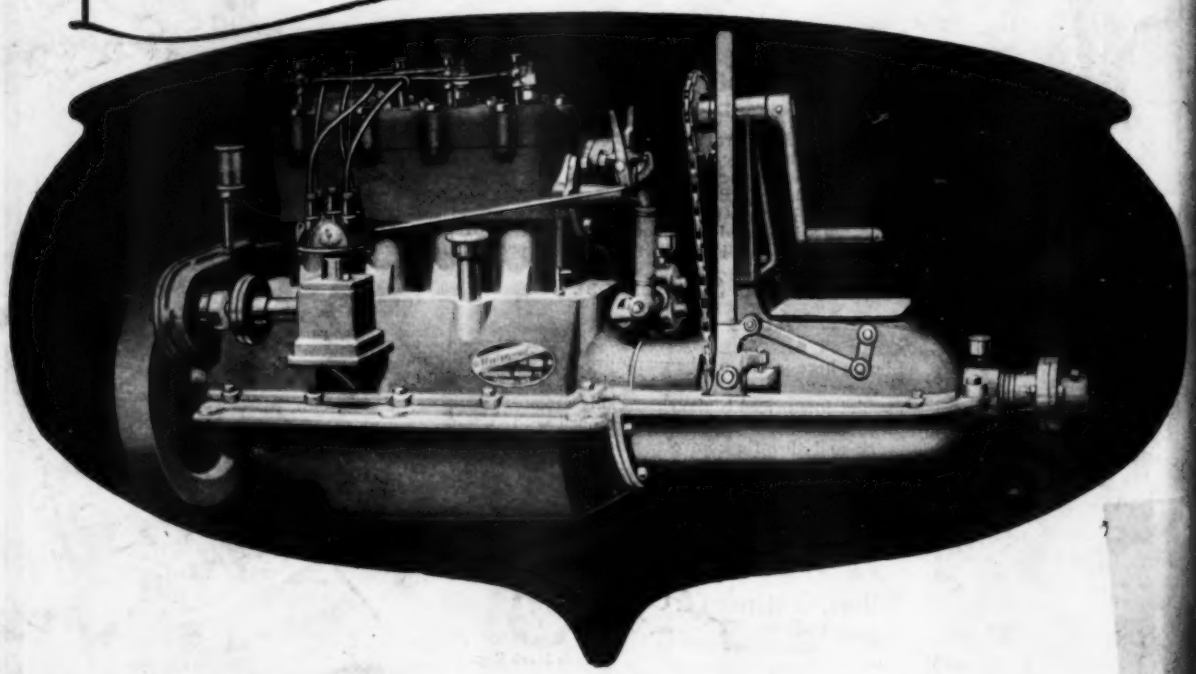
The Universal has been so perfected as to become a standard type. There are no costly yearly changes of models to needlessly increase the price of the Universal motor.

The Universal 4 K.W. Generating Set furnishes steady, flickerless electric light and is as popular as the Universal Motor. It is widely used for lighting boats and boathouses, summer camps and homes.

Write for the Universal Catalog.

UNIVERSAL MOTOR CO.

Oshkosh **Wisconsin**



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